South African Wine Industry Information and Systems (SAWIS)

Macro-economic Impact of the Wine Industry on the South African Economy (also with reference to the Impacts on the Western Cape)

Final Report

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List of Abbreviations

SAWIS:	South African Wine Industry Information and Systems
PWC:	Price Waterhouse Coopers
SAM:	Social Accounting Matrix
GDP:	Gross Domestic Product
StatsSA:	Statistics South Africa
DBSA:	Development Bank of South Africa
DPLG:	Department of Provincial and Local Government
GOS:	Gross Operating Surplus
SARB:	South African Reserve Bank

EXECUTIVE SUMMARY

PART I: A GENERAL DESCRIPTION OF THE WINE INDUSTRY

In Part I of this study reference is made to developments in the wine industry over the past five years or so, whilst the magnitude of the industry in economic terms is given for the calendar year of 2008.

RECENT DEVELOPMENTS

For the most part of the first decade of the second millennium, the wine industry in South Africa experienced a significant swing towards red wine production - moving from 18% of planting in 1996 to 44% in 2008. This gave rise to a surplus production position putting downward pressure on producers' prices.

Given that the local demand for wine, red wine in particular, did not match the increased supply, the local industry was forced to enter the export market in a much more aggressive way than ever before. No wonder then that export, as percentage of local production increased from 21% in 1999 to 54% in 2008. Despite fluctuations in the Rand exchange rates over this period, the general trend was downwards, helping to maintain export profitability.

The inflationary conditions coupled with pressure on disposable income have resulted in consumers trading down. This obviously became much more price conscious. The South African wine consumer in general is regarded as more price conscious and less likely to venture into the higher priced products. In 2008 the demand for white wine has weakened whilst red wine sales showed a moderate increase. However, as far as red wine is concerned, the supply/demand position has since moved into equilibrium.

OVERALL ECONOMIC STATUS OF THE WINE INDUSTRY IN 2008

The total turnover of the wine alcohol industry in 2008 amounted to R19 164 million. Of this amount R6 272 million was exported directly. Imports amounted to R237 million or about 2% of domestic sales. In actual fact, primary agriculture output valued at R3 320 million was beneficiated and added in value downstream to the value of R19 164 million, i.e. about 5 times the initial value of the raw materials. Another R4 263 million was generated indirectly through wine tourism.

Compared with the 2003 study, it is evident that the wine industry as a whole did somewhat better over the 2003 – 2008 period. Total turnover grew by 79%. This growth can be attributed mainly to the excellent export performance (close to doubling in current rand value terms since 2003). The growth in value of domestic sales in nominal terms, over the period 2003 – 2008 amounted to 76%. These figures also indicate the much slower growth in primary producers' income but an escalating tax haul by government. The industry has been under ever increasing inflationary pressures on the production side that ultimately had to be given through to the consumers. However, the primary producers were in a more disadvantaged position to recoup all these cost rises.

TOURISM

As in the previous studies, the researchers again made an attempt to establish the extent "wine tourism" features in the wine industry's contribution to the economy. Information in this regard is rather scant, but it was possible to make use of indirect methods to establish a useable figure.

The Western Cape is, as could be expected, a very popular holiday and tourist destination (15% of all local tourists and 17% of all foreign tourists in 2008). These tourists spend their time on a variety of activities, ranging from visiting wildlife; cultural, historical and heritage sites, natural attractions; shopping, etc. Assuming these tourists just spend one day of their holiday visiting the wine lands, an amount of about R1 billion in spending can be indirectly linked to this tourist attraction. However, much more research is needed to arrive at more valid figures in this regard.

Lastly, in the tourism field, a brief look was given at the expected impact that the 2010 Soccer World Cup might have on "wine tourism". Again, relevant data is scarce, if not unavailable. A special study by the Government revealed that about 500 000 visitors will enter the country during the 5 weeks. Cape Town will entertain 7 matches, roughly 70 000 people will be involved with each match, of which 50 000 will be local people. So, the extent to which they might end up in the wine lands needs further research.

PART II: MACROECONOMIC IMPACT ASSESSMENT OF THE WINE INDUSTRY

This part of the study comprised the use of macro-econometric models to calculate the total impact of the wine industry on the South African economy and the Western Cape.

IMPACT ON GDP (INCLUDING REGIONAL PERSPECTIVE)

The wine industry contributes R26 223 million to the annual GDP of South Africa. What is also important to note is the measure of value added that takes place with every step of beneficiation. Starting at farm level, the initial value of the raw material in terms of income created, amount to R3 373 million and ultimately leads to a total GDP value of R21 743 million (excluding tourism). This illustrates the exceptional ability of the industry as a creator of economic growth.

However, the question is whether the wine industry contributes a fair and reasonable share to GDP per unit of capital invested compared to other industries. The study showed that its GDP/Capital ratio of 0.53 is higher than the national average of 0.46. Even though this is not a measure of the profitability of the industry, it does signify that its capital "productivity" is in line with the average for the national economy.

Of the R26 223 million GDP created in South Africa by the wine industry, about R14 214 million remained in the Western Cape (approximately 54%).

IMPACT ON EMPLOYMENT

The wine industry supports employment opportunities to the tune of 275 606. Of this number 58% are unskilled, 29% semi-skilled and 13% skilled. According to the

labour/capital ratio (5.54) it is obvious that capital is applied much more effectively regarding employment creation as the ratio is higher than that of the national economy (3.18). The relative labour intensiveness of the wine industry is specifically the result of the intensive labour production methods which are followed in the primary agriculture. In the Western Cape, the wine industry in total is responsible for 8.8% of total employment (168 102), compared to 2.2% for the country as a whole.

CAPITAL UTILIZATION

A total capital stock of R49 768 million (2008 prices) is required nationally in the wine industry and supporting industries to sustain the present level of GDP of R26 223 million in 2008. The wine industry is probably more capital intensive than is generally believed. Although the primary agriculture portion of the wine industry is relatively labour intensive, the other portions of the industry i.e. cellars and manufacturing are more capital intensive.

Thus both are the labour and capital front, the wine industry seems to be more efficient in the utilization of these productive factors.

INCOME DISTRIBUTION

Household income worth R17 124 million was generated by the wine industry in 2008, of which R2 908 million is destined for the lower income groups of which a large portion is spent in the Western Cape region. Coupled with the annual expenditure by farmers on production inputs, one can understand why the wine industry forms the backbone of the economy of many districts in the Western Cape. 17% of household income is generated by the wine industry which is only slightly above the average of 16% for the economy as a whole.

CONCLUSION

The South African wine industry has again gone through a tough period of major changes over the past 5 years, as is largely reflected by the changes in its economic structure. Its re-introduction into the world trade set-up has brought huge opportunities, as reflected by the doubling in exports but on the other hand has brought pressure on its competitiveness. As in the past, the R/$ and Rand/ Pound/Euro exchange rate development will be crucial for the country's future economic health.

In terms of the wine industry's actual impact on the South African economy, the study again produced some interesting results. Of these the following deserves to be mentioned:

- The total capital asset base (direct, indirectly and induced) of the wine industry is estimated at R49 768 million. The corresponding number of employment opportunities that are supported by the wine industry amounts to a significant 275 606. The major part is to be found in the trade, catering, accommodation and transport sectors.
- In terms of GDP, the total (direct, indirect and induced) annual impact of the wine industry of the Western Cape on the national economy amounts to R26 223 million which amounts to 2.2% of the total GDP of South Africa in 2008.

- The wine industry generates an amount of R17 124 million of private disposable income. Of this amount, 17% is destined for low-income households which are slightly higher than for the economy as a whole (16%).
- The Labour/Capital ratio for the wine industry amounts to 5.54 which is much higher than that of the economy as a whole and should be highly regarded.
- The GDP/Capital ratio for the wine industry in total of 0.53 is somewhat higher than that of the economy as a whole, namely 0.46. With the exception of the wholesale and retail component all the other sectors related to the wine industry show smaller GDP/Capital ratios than the average of the economy.
- For purposes of this study, the regional impacts emanating from the wine industry were also calculated for both GDP and labour. Of the total impact that the wine industry has on GDP and employment creation, approximately R14 214 million and 168 102 employment, respectively, occurs in the Western Cape.

PART I

1 INTRODUCTION AND BACKGROUND

This study of the impact on the wine industry in the Western Cape, with 2008 as the base year, is the third consecutive study of this nature. The two previous studies with 1999 and 2003 as the respective base years produced some very interesting results pertaining to many aspects surrounding and inherent to the wine industry.

One of the most important aims of these studies was to give a reasonably accurate presentation of the magnitude of the industry in monetary terms for a specific calendar year. This also includes the various stages of value added from the raw material producers' levels right through to the final retail sales values (including exports). When these studies started off in 2000, economic data on some of these aspects were scant, but with the help of industry experts these shortcomings were overcome so that 2003 would represent an authentic picture of the structure of the wine industry.

However, as we stand at present, the volume and quality of the relevant statistics have improved even further with the help of SAWIS and its constituent members who played a crucial role.

With the help of Vinpro, PWC and SAWIS, it was for the first time possible to attain more accurate figures of the actual commercial income of wine producers per wine producing region. Information on the sales split between white and red wine varieties as well as the volume and value relationships between bulk and packaged sales could be brought into the equation.

Obviously, information of this nature will help in identifying structural and other changes that are constantly at work in the wine industry.

In addition to the improvement in the quality and availability of relevant statistics, Conningarth Economists, have since the 2003 study, also worked on improving especially its impact models. In this regard, for example, the newly compiled Western Cape Social Accounting Matrix (SAM) was employed to improve the wine impact results on the Western Cape and on the national economy. For the sake of interest, in the new SAM, separate provision is made for the wine producing sector, apart from non-alcoholic beverages.

In addition, Conningarth Economists have technically improved its impact models to take better notice of possible leakages of wine's intermediate demands to other provinces and even to overseas suppliers.

All the above developments, plus others which will be covered later under the particular headings, have hopefully contributed to an improvement in the quality of quantified impact outcomes.

2 IMPORTANT DEVELOPMENTS IN THE WINE INDUSTRY BETWEEN 2003 AND 2008

2.1 General Observations

In general, the South African wine industry's performance in 2008 should be viewed against the background of the worldwide financial meltdown that really started to gain momentum in the second half of 2008. South Africa's own economy only started to move into recession in the final quarter of 2008.

For the period between 2003 and 2008, a number of structural developments concerning the wine industry were foreseen in the 2003 study. For example, the changeover to red wine consumption for various reasons, both here and abroad, which caused a major increase in red varietal plantings.

This has increased from 18 percent of total plantings in 1996 to 44 percent in 2008. Obviously, local producers were prepared to take on the risk of increased red wine production provided the strong tendency in red wine demand continued. The question remains whether this move has paid off? Unfortunately, the local demand did not fully match the increase in supply, leading to depressed prices of red wine grapes to producers. For example

Table 1: Index of Average Price per Ton to Producers (2000 = 100)

Red Wine	2000	2008
Cabernet Sauvignon	100	41
Merlot	100	42
Pinotage	100	39
Shiraz	100	44

Source: SAWIS 2008

On the other hand, as far as white wine is concerned, the picture looked somewhat better. As shown in the table below the prices for a number of well-known white wine grapes over this 8 year period showed an upward trend.

Table 2: Index of Average Price per Ton Paid to Producers (2000 = 100)

White Wine	2000	2008
Sauvignon blanc	100	140
Chardonnay	100	170
Riesling	100	211

Source: SAWIS 2008

Given these diverse price movements, it is clear that the range of the mix between red and white wine grapes of a producer would have had an important impact on profitability and commercial viability in general.

Given that the local demand for wine, red wine in particular, did not match the increased supply, the local industry was forced to enter the export market in a much more aggressive way than ever before. No wonder then that those exports, as percentage of local production, increased from just 21 percent in 1999 to 54 percent in 2008.

Obviously, this changed structure of demand/supply that developed over the past number of years, has made the local wine industry more susceptible to changes in inflation rates

locally and in target markets as well as foreign exchange rates. Over the past 10 years or so the wine industry had to cope with rather volatile movements in the R/US$ and the R/Pound Sterling exchange rates for example:

Table 3: 10 Year Movement in the R/US$ and R/Pound Sterling Exchange Rates

Year	R/US$ Exchange Rate	R/£ Exchange Rate
1999	R6.20	R9.50
2003	R4.38	R12.17
2005	R6.67	R12.00
2007	R7.09	R14.00
2008	R7.87	R15.71
2009	R7.50	R12.42 (September 2009)

As can be seen from the above the Rand/Pound Sterling exchange rate certainly contributed to enhancing South African wine's competitiveness (the UK being by far the major export market). On the US Dollar side of things the exchange rate did not play such an important role, although it tended to fluctuate as it depreciated.

2.2 Pressure on Profitability in the Wine Industry

When looking at the above developments over the past number of years, and given that local consumption of natural wine has in absolute volume terms declined (see SAWIS, 2008), the question can be raised of how the local wine producers could remain viable? Recent studies[1] have shown that of the average retail (shelf) price of R24 per 750ml bottle of wine the producer at farm level receives only 44c, and this is in contrast to R1.07 per bottle (i.e. 4% of retail price) that is required for a reasonable and justifiable entrepreneurs' remuneration and return on capital.

As a result of the financial pressures on the wine producers since 2005, the planting of new vines have not fully replaced those vines that have been uprooted. The result being that new plantings were not able to sustain existing production levels. Furthermore, it is negatively affecting the age distribution of the vines away from an optimal distribution. From whichever angle one looks at the primary wine producers, the situation since the previous study in 2003, especially as far as their financial position is concerned, has not improved that much if it wasn't for the export drive.

2.3 Market Conditions 2008/09

A number of interesting developments have been seen in the past year or so regarding consumer behaviour both locally and overseas.

Local Market Situation

The inflationary conditions coupled with pressures on personal disposable incomes have resulted in consumers trading down. They obviously became much more price conscious. The South African wine consumer in general is regarded as more price orientated and less likely to venture into the higher priced products.

[1] Quoted from Wine Land, September 2009 – Article by Jana du Toit.

In 2008 the demand for white wine has weakened whilst red wine sales showed a moderate increase.

Another important development in the local wine making industry is the marked increase in small independent producers. Given the cost pressures referred to above, it is believed that most of these producers can only survive if they diversify into providing tourist services (i.e. accommodation; restaurants; olive oil etc.).

Some industry observers, however, foresee that a measure of consolidation has to take place as well as sharing of packaging, marketing and distribution services.

International Markets

As indicated earlier, the export option to a large extent actually saved the local wine industry from even further financial stress over the past number of years. The amount exported increased phenomenally from "just" 115 million litres in 1998 to 407 million litres in 2008. Even though the Rand strengthened against the US Dollar and the UK Pound in recent months the overall depreciation of the Rand against these major currencies and over the longer-term has been to the advantage of exporters.

However, market commentators still foresee tough competitive conditions in the next year or so. The major part of wine exports fall in the low-end price categories, in the UK this entails an average shelf price of £3.99 (±R50) per bottle.

According to studies by Vinpro and Winetech (2008)[2] it is very difficult to make a profit overseas at these prices if at all. Especially given the movement (strengthening) of the Rand in recent times (see table below).

It should also be kept in mind that it is not only South Africa, as one of the "New World" exporters which has recently experienced problems in the export markets. Both Australia and New Zealand, for example, have to cope with the problem of "saturation" following huge increases in their wine exports[3].

Table 4: Exchange Rates of the Rand

	30 Sep. 2008 to 31 Dec. 2008	31 Dec. 2008 to 31 Mar. 2009	31 Mar. 2009 to 30 Jun. 2009	30 Jun. 2009 to 25 Aug. 2009
Weighted Average*	-7.8	0.8	17.5	-1.3
Euro	-8.9	2.5	16.7	-1.8
US Dollar	-10.6	-3.4	23.8	-0.5
Chinese Yuan	-10.6	-3.2	23.8	-0.5
British Pound	11.6	-2.1	6.2	1.1
Japanese Yen	-23.1	5.2	20.3	-1.7

* Against a basket of 15 currencies; Source: Quarterly Bulletin September 2009 – South African Reserve Bank

According to some of the industry's marketing practitioners it is always a risk to progress too quickly in gaining a market share of an overseas market due to "brand tiredness" that may set in. In any event, the volatility in foreign exchange rates makes the continuous marketing of wine in overseas markets and brand fixing difficult enough – as shown in the table above.

[2] Quoted in Wineland Publication, September 2009.
[3] See article in New Zealand Herald; May 23, 2009.

3 OVERALL ECONOMIC STATUS OF THE WINE INDUSTRY IN 2008

The developments in the wine industry described in the previous sections, provides a background framework in order to interpret the significance of the economic aggregates presented in the following table concerning the situation in 2008.

When looking at the figures represented in the following table, it is important to take the following into account:

- The total turnover includes the production for the Orange River;
- The Export and Current Import Level data was obtained from Statistics South Africa, as obtained from primary data provided by the Department of Customs and Excise;
- For purposes of correctly modelling the system, it was necessary to impute exports and domestic sales at each of the value chain stages. It is important to note that the exports at each stage are equal to the amount of total exports;
- The term manufacturing is defined as processing, packaging, bottling and labelling. It also includes brandy and grape juice;
- The current import level for manufacturing figure is at c.i.f. value plus import taxes. This is due to the fact that the trade and transport margins as well as VAT and excise taxes have already been accounted for in the local sales figure;
- The trade and transport margins were obtained from the 1993 Input-Output table (CSS). For how it was derived, see Appendix A to Part I;
- The data for the taxes (VAT and excise) is based on structures provided by SA Tourism (2008 Annual Report). See also Appendix A to Part I for more detail;
- The 2008 figure, given in the SAWIS book of Statistics 2008; Table 11.3 was used;
- The data for tourism is based on structures by SA Tourism (2008 Annual Report). See also Appendix A to Part I for more detail.

Table 5: Economic Structure and the Flow of Goods and Services in the Wine Industry (Rand millions; 2008 prices)[1]

Market Segment / Economic Sector		(1) Incremental Turnover[1]	(2) Exports[2]	(3) = (1) - (2) Domestic Sales	(4) Current Import Level[2]
A	**Primary**				
1	Primary Agricultural	2 236	893[3]	1 343	0
2	Cellar	1 084	433	651	0
	Total Primary	**3 320**	**1 326**	**1 994**	**0**
B	**Manufacturing, Wholesale and Retail Trade**				
1	Manufacturing[4]	5 644	2 254	3 390	211[5]
2	Trade, Catering and Accommodation[6]	6 741	2 692	4 049	26
3	Taxes (VAT and Excise)[7]	3 459[8]	0	3 459	0
	Total Manufacturing, Wholesale and Retail and Transport	**15 844**	**4 947**	**10 898**	**237**
C	**Sub-Total (A + B)**	**19 164**	**6 272**	**12 892**	**237**
D	**Tourism[9]**				
1	Foreign	3 463	3 463	0	0
2	Local	800	0	800	0
	Total Tourism	**4263**	**3 463**	**800**	**0**
	Grand Total (C +D)	**23 427**	**9 735**	**13 692**	**237**

Source: SAWIS 2008 structures used unless otherwise indicated.

1. The total incremental turnover includes the production for the Orange River;
2. The Export and Current Import Level data was obtained from Statistics South Africa, as obtained from primary data provided by the Department of Customs and Excise;
3. For purposes of correctly modeling the system, it was necessary to impute exports and domestic sales at each of the value chain stages. It is important to note that the exports at each stage are equal to the amount of total exports;
4. The term manufacturing is defined as processing, packaging, bottling and labeling. It also includes brandy and grape juice;
5. The current import level for manufacturing figure is at c.i.f. value plus import taxes. This is due to the fact that the trade and transport margins as well as VAT and excise taxes have already been accounted for in the local sales figure;
6. The trade and transport margins were obtained from the 1993 Input-Output table (CSS). For how it was derived, see Appendix A to Part I;
7. The data for the taxes (VAT and excise) is based on structures provided by SA Tourism (2008 Annual Report). See also Appendix A to Part I for more detail;
8. The 2008 figure, given in the SAWIS book of Statistics 2008; Table 11.3 was used;
9. The data for tourism is based on structures by SA Tourism (2008 Annual Report). See also Appendix A to Part I for more detail.

See also Appendix A to Part I for additional statistical information regarding the figures reported in the above table.

An important aim of these studies all along has been to quantify in Rand terms, the economic value added at each phase of the institutional chain that constitutes the production, distribution and selling of wine locally and overseas (this is also referred to as the value chain).

The above table contains the monetary values of each successive stage of the beneficiation process of wine making and selling for the year 2008 (in 2008 prices). The data is classified according to the main economic sectors and market segments involved. The table does not deal directly with the regional impact (except for foreign trade), which will be dealt with in Part II of this study.

The table above also shows that the value of the total turnover of the wine alcohol industry in 2008 amounted to R19 164 million. Of that amount R6 272 million was exported directly. Imports amounted to R237 million (i.e. c.i.f. values plus import taxes). In actual fact, primary agricultural output valued at R3 320 million was beneficiated and added in value downstream to the value of R15 844 million i.e. ±5 times the initial value of the raw materials. Put another way, in this process income (consisting of the remuneration of both labour and capital) to the tune of R19 164 million was directly and indirectly generated in the RSA and overseas (via imports). Furthermore, it is estimated that an additional amount of R800 million was generated indirectly through domestic tourism.

Compared with the 2003-study, it is evident that the wine industry as a whole did somewhat better over the 2003 – 2008 period, see the table below. Total turnover grew by 79%. However, this aggregate figure could be misleading. Further scrutiny of the data shows that this growth was bolstered by a sustained high export performance – in actual fact it nearly doubled. The growth in the value of domestic sales in current price terms, over the period 2003 - 2008, amounted to 76%.

Table 6: Growth Rates: 2003 – 2008; Main Economic Components of the Wine Industry (2008 Prices) RMillions

Economic Sector	2003	2008	Percentage Change
Primary Production	2 406	3 320	37%
Total Turnover (Local Wine Output)	10 675	19 164	79%
Manufacturing Production[1]	3 274	5 644	72%
Exports	3 153	6 272	99%
Taxes/Excise	2 022	3 459	71%
Local Sales[2]	4 223	7 439	76%

1. Before trade and transport margins and taxes.
2. Without taxes

These figures also indicate the slower growth in primary producers' income and the escalating tax haul by government.

As will be shown in Appendix A to Part I, the industry has been under ever increasing inflation pressures on the production side that ultimately had to be given through to the consumers. However the primary producers were in a more disadvantaged position to recoup all these cost rises.

4 TOURISM IN 2008

In both previous studies (1999 and 2003) an attempt was made to measure the impact on the Western Cape economy of tourists visiting the Western Cape but also spending some of their time visiting the Cape Wine Routes. The key to the whole exercise was to come up with a reasonably trustworthy figure of the number of tourists who actually venture into the wine lands – i.e. either visitors from overseas and of course South Africans that visit these wine lands. Unfortunately such data is not readily available unless direct survey methods are employed, and therefore indirect methods had to be employed to obtain useable figures.

Local Tourism

Fortunately a whole range of useful tourist information can be gleaned from the Annual Reports of South African Tourism, the official state sponsored body to promote tourism in South Africa. The following interesting data was extracted from the 2008 Annual Report:

- In 2008 the Western Cape entertained 15% of all bed nights.
- In 2008 R3.9 billion was spent by local tourists visiting the Western Cape (12% of the national total – being Western Cape's share of local tourist's destinations).
- About 13% of these tourists visited so-called "natural attractions, cultural, heritage and historical sites" (probably including cellars and travelling through the vineyards).
- On average spend 6 bed nights.
- They spend on average of R1 910 per day; business travellers R1 640 and the rest on average R780 per day.
- Another important aspect of local tourists is that a large portion stay with friends and relatives and use own transport (the so-called VFR group). In the Western Cape's case the percentage is as high as 70%.
- It should be borne in mind that the Western Cape includes the Garden Route/Klein Karoo areas which attracts part of the Western Cape total.

If an assumption is made that visitors spend roughly 15% of their time on visits to the wine routes *inter alia* also visiting historical, cultural sites, then a figure of R800 million as a benchmark figure for local wine tourism is possible. Given the unknown behaviour of local tourists visiting friends and relatives in the Western Cape the estimate of R800 million for spending on the Wine Route activities by local tourists may be somewhat low (there is no doubt that further in-depth studies are required to refine these figures down to levels required by tourism functionaries).

Foreign Tourism

- In 2008 17% of all foreign tourists visited the Western Cape.
- The Western Cape captured 28% of bed nights required by foreign tourists which amounted to 21.08 million bed nights.
- Direct spending by tourists in the Western Cape amounted to R20.8 billion in 2008.
- They also tend to stay an average of 8 nights in the Western Cape (that includes all kinds of visitors, those coming for holidays tend to spend longer periods).

Table 7: Activities of Foreign Tourists

Activities by Purpose of Visit for 2008									
	Holiday	**Shopping (Personal)**	**Shopping (Business)**	**Business Traveler**	**Business Tourist**	**Medical**	**VFR**	**Religion**	**Other**
Shopping	96%	99%	90%	90%	88%	71%	96%	93%	92%
Nightlife	92%	63%	49%	81%	78%	0%	65%	75%	81%
Theme Parks	22%	2%	2%	6%	5%	1%	8%	0%	11%
Trading	1%	3%	60%	3%	2%	0%	1%	0%	1%
Visits to Casino	15%	3%	1%	6%	6%	0%	7%	0%	6%
Sport Competition	2%	0%	0%	6%	0%	0%	1%	0%	2%
Sport Attending	2%	0%	0%	1%	0%	0%	1%	0%	11%
Business	2%	0%	2%	76%	68%	0%	1%	0%	3%
Cultural, Historical and Heritage	43%	3%	1%	12%	13%	1%	19%	0%	17%
Wildlife	53%	1%	0%	14%	9%	1%	9%	0%	15%
Visiting Natural Attractions	64%	2%	0%	19%	14%	2%	20%	0%	23%
Beach	42%	1%	2%	13%	0%	2%	13%	0%	20%
Social	34%	35%	11%	14%	14%	37%	90%	40%	0%
Medical	2%	1%	0%	0%	0%	81%	2%	0%	1%
Health	1%	0%	0%	0%	0%	13%	1%	0%	1%

Source: SA Tourism; 2008 Annual Report; page 59.

From the above table one can see the importance foreign tourists attach to various activities when they arrive in South Africa. The table indicates that they spend as much time on, for example, visiting natural attractions as visiting cultural, historical and heritage sites. It is not clear whether they actually combine these trips. The fact of the matter is, it is not easy to obtain hard data on the amount of time and money foreign tourists spend on visits to the wine lands in particular. The majority will most probably not stay in accommodation in the wine areas but will travel from the Cape Peninsula or elsewhere.

For the sake of assumption, if the tourists on average devote one day (i.e. 1 of 8) of their stay in the Western Cape visiting the Wine Routes and other cultural and heritage sites, an amount very roughly of R4.2 billion can indirectly be linked to those that most likely have ended up in the wine lands.

Sport Tourism (2010 Soccer World Cup)

According to the Government's 2010 Soccer World Cup Tourism Organising Plan[4], ± 500 000 foreign tourists can be expected over the 4 weeks between June/July 2010. Seven matches will take place in Cape Town and for each match about 22 000 beds will be required. However, according to this report, an amount of 69 663[5] people will be involved in one way or another with each match. The stadium accommodates 40 000 people, 50 000 of 69 663 people are not tourists as they are from local origin and will not require formal accommodation and will be of the VFR sort.

As can be seen from the above, a more thorough study is needed to arrive at exact figures of actual foreign tourists originating from the Soccer 2010 World Cup who will actually also be visiting the wine lands, so no attempt to determine the figure was even considered.

[4] Report by South Africa Tourism, 2005
[5] ibid figure 12.

5 INSTITUTIONAL ASPECTS

The institutional chain that forwardly links all the participants in the whole economic process of beneficiation is shown in the following table.

Although the major portion of actual economic value added through the process of beneficiation takes place in the Western Cape, a substantial part thereof will realise in other parts of the country, mainly through the wholesale and retail components. (This aspect will be dealt with in Part II of this study).

At the retail level a large portion of the sale of alcoholic beverages is directed at the organised leisure market, i.e. people visiting restaurants, hotels, clubs, etc. This is also where the tourism market is becoming increasingly important. In relation to the wine industry, the impact of tourism on demand can be categorised in two parts, viz:

- Tourists' direct consumption of wine at hotels, guesthouses, restaurants, etc. while visiting South Africa
- Tourists visiting the Western Cape with the specific aim of visiting the Wine Routes and also purchasing wine from cellars

Table 8: Wine Industry Structure in 2008

	Tons	Number of Producers	Production Category
Primary Grape Producers			
	1 – 100	1 544	
	101 – 500	1 423	
	501 – 1 000	498	
	1 001 – 5 000	367	
	5 001 – 10 000	7	
Total Number of Primary Grape Producers		**3 839**	
Wine Cellars which Crush Grapes			
		58	Producer Cellars
		504	Private Wine Cellars
		23	Producing Wholesalers
Total Number of Wine Cellars which Crush Grapes		**585**	
Bulk Wine Buyers			
		47	Wholesalers (including producing wholesalers)
		71	Exporters (buy wine for export only)
Total Number of Bulk Wine Buyers		**118**	

APPENDICES TO PART I

6 APPENDIX A

6.1 Estimating Total Turnover, Manufacturing, Production, Trade and Transport and Tax Components for 2008 pertaining to the Wine Industry

Table 9: Comparison of Wine Production Value between 2003 and 2008

Beverages					Retail Wine Sales[6]
Year	Value of Sales (R 000)[7]	Indices of Physical Volume of Production (1995 = 100) MPI30500	Production Price Index Alcoholic[8]	Value of Production	Rand millions
	1	2	3	4 = 2 x 3	5
2003	2 667 142	87.45	126.6	101.75	R7 544 427
2008	4 669 245	113.09	176.1	147.76	R11 106 594
Growth (2003 – 2008)	75%	29.3%	39.1%	79.8%	47.2%

Note: See footnotes at the bottom of the page.

I. Total Turnover

As a starting point, use is made of the total sales of beverages as measured by StatsSA, to establish a growth rate of the overall Wine Industry over the period 2003-2008. This rate is then applied to the 2003 figure (R10 675 – see Table 1, 2003 Report) to obtain the 2008 figure. As shown from the above table, this increase over the 5 year period amounted to 75%. Obviously, this should be regarded as a first approximation, seeing that this figure also includes non-alcoholic beverages.

However, this preliminary figure is then used as a kind of reference point to ultimately arrive at a realistic local sales figure after exports have been subtracted.

It should be remembered that the figure for exports of wine products is regarded as hard, coming from official primary sources (customs and excise department).

II. Manufacturing Production (Total, including Exports)

To estimate production in the 2003 Report, use was made of the growth in the physical production index of beverages (including non-alcoholic beverages), adjusted for the Production Price Index (PPI), to arrive at a growth percentage of the period in question (1999-2003).

In this report the same calculation was again made, and a growth rate over the period 2003-2008 amounted to 79.8% (See Column 4; of the above table).

However, having regard of the fact that for this report new figures were obtained for retail sales of wine related products (See Column 5 of the above table). For the purpose of this

[6] SAWIS/Vinpro Publications
[7] Source: StatsSA: Publication No. P6241-1
[8] Source: StatsSA: Website interactive data retrieval

study, the growth rate between 2003 and 2008 of these sales figures were regarded as authentic and useable. A figure of 47.2% is shown in Column 5 considering that the volume of consumption of wine and related products barely rose over the 2003-2008 period (±3% in volume terms) and taking note of the increase in the production price index of 39.1%, the growth rate in consumer spending of 47.2% seems acceptable and reasonable.

Assuming that the official export figure is non-negotiable and the local consumption figure of wine and brandy obtained from Vinpro and SAWIS data is correct, adding these two figures should give a reasonable figure of total manufacturing turnover - imports are so small that for the purpose of this calculation it is not brought into the equation, i.e. R5 644 million with an implicit growth over the 5 year period of 72.3%. This is only slightly lower than the indirectly derived figure of 79.8% (See Column 4 of the above table).

III. Trade and Transport Margins

No changes to these margins were affected for the purposes of this study. Consequently, these margins grew at the same rates over the period 2003-2008 as the principal economic aggregate to which it is attached.

IV. Taxes

- VAT and Excise income has increased by 71% over the period from 2003 to 2008.
- Import tariffs have to be calculated separately as follows:

$$Total\ f.o.b.\ Imports^{9}\ (inlc.\ Custom\ and\ Excise) + c.i.f.\ factor + Import\ Tariffs = Total\ Imports\ excluding\ trade\ and\ transport\ margins$$
$$R191.44\ million + R19.14\ million + R26.46\ million = R237.04\ million \ldots [A]$$

When looking at the local trade and transport margins (excluding the direct taxes) is was assumed that the local trade and transport margin amounts to 40% of the retail sales prices (1993 I-O Table). Imports including trade and transport margins are therefore as follows:

$$R237.04 \times \big(100 \div (100 - 40)\big) = R395.06\ million \ldots [B]$$
$$Trade\ and\ Transport = [B] - [A]$$
$$\therefore Total\ Trade\ and\ Transport = R158.02\ million$$

As this import figure is already included in the local sales figures it is not necessary to again show the VAT and Excise Taxes on imports.

[9] Being so negligibly small in comparison with the VAT and excise amounts derived by the state, this tax was not worked into the above table.

PART II

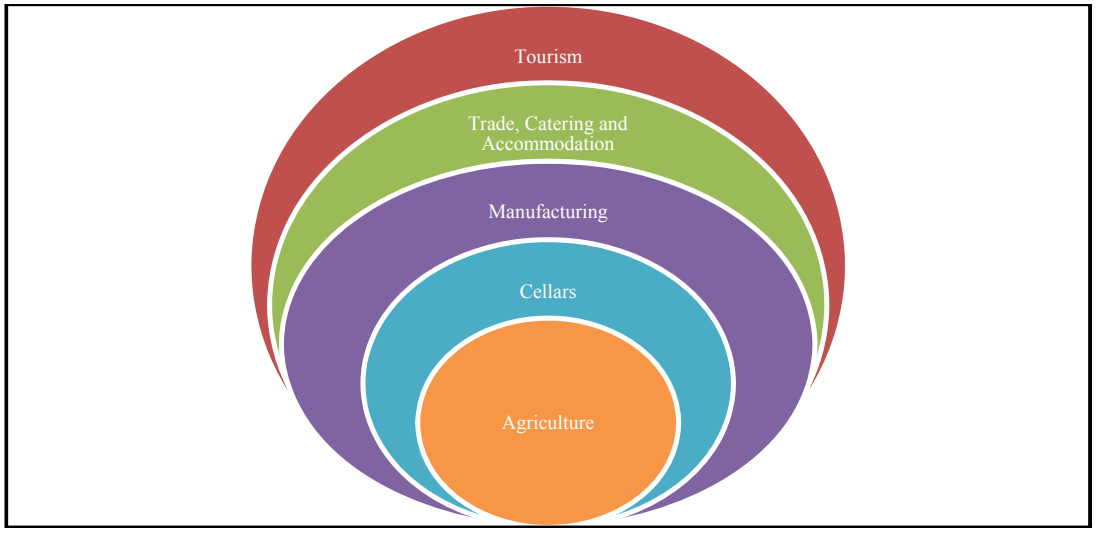
7 INTRODUCTION

In Part I of this report, a description of the nature and magnitude of the wine industry's contribution towards the overall national economic activity was provided for the year 2008. Part II represents a more detailed and a further breakdown of the aforementioned macro-economic impact of the wine industry via various economic aggregates. Although the macro-economic impact of the wine industry relates mainly to the national economy, it was also imperative to capture and depict the impacts on the Western Cape economy. This is due to the fact that even though the wine industry is mainly situated in the Western Cape. For analytical purposes the macro-economic impact of the wine industry on the Western Cape and national economy, was based on the so-called "value added trail" *viz* starting with primary agriculture production progressing through to the retail sale of finished products. This represents the so-called value chain/forward linkages emanating from the various stages of wine making. These value chains/stages of refinement or forward linkages are the following:

- Agriculture (production at farm level)
- Cellars
- Manufacturing
- Trade, Catering and Accommodation
- Tourism

The economic impacts of each of these stages are quantified and discussed separately thereby illustrating the individual contribution that each of these components of the wine industry make towards the economy of South Africa and that of the Western Cape. When these stages are added together, the total economic impact is determined. This build-up effect till the final unit of production is ready for consumption (in this case a bottle of wine) can be illustrated with the aid of the following diagram.

Diagram 1: Wine Industry Illustrated by means of the Cost Build-Up of a Production Unit (Bottle of Wine)



As indicated before, the total economic impact of each phase of refinement, including packaging, distribution, transport and retail will be quantified by the models (in other words the direct, indirect and induced economic effects will be quantified). Even the secondary tourism effects, i.e. the impacts on industries acting as suppliers of the wine related tourism industries will be calculated. The composition of the total "bottle-of-wine" effect is shown in Table 16 and the previous diagram.

The quantified total impact of each value adding activity of the wine industry, as stated above, will be presented in terms of economic aggregates such as Gross Domestic Product (GDP), Employment Creation, Capital Utilisation and Income Distribution. The impacts are not only provided in terms of absolute levels of the macro-economic indicators, such as GDP or employment, but are also presented in terms of the relative efficiency of investment in the wine industry. For instance, how many employment opportunities are expected to be created per R1 million invested in the wine industry – or in a specific part of the beneficiation process?

The scope of the macro-economic impact assessment is provided in the subsequent section.

8 SCOPE OF MACRO-ECONOMIC IMPACT ASSESSMENT

The macro-economic impact assessment pertaining to this study was conducted for the 2008 calendar year and in 2008 prices. As was the case with previous studies of this nature, it is important to define in exact terms the geographical dimensions of the study focus area. In this regard the project focus area comprises of the following wine producing regions:

- Breedekloof
- Little Karoo
- Malmesbury
- Orange River
- Olifants River
- Paarl
- Robertson
- Stellenbosch
- Worcester

For this study, the client proposed that nine wine producing regions be identified as part of the analysis, contrary to the previous study (2003) whereby only seven regions were singled out (however, the original total wine producing region under investigation remained intact).

By using a general equilibrium economic impact model, with the Social Accounting Matrix (SAM) as basis, the so-called direct, indirect and induced effects on the economy emanating from the various levels of value adding i.e. at primary agriculture, manufacturing, etc. levels are quantified. A more detailed technical description of the Social Accounting Matrix (SAM) and its analytical attributes are provided in Appendix A to Part II.

The direct impact occurs in the various wine components for instance through production/turnover, payment of remuneration to employees and profit generation. The indirect impacts refer to impacts on industries that provide inputs to the wine industry components and other backward linkages. The induced effect or income effect refers to a further round of economic activity that takes place in the economy because of additional consumer spending as a result of the additional salaries and wages throughout the economy and also the Western Cape. These impacts are defined in more detail in Appendix B to Part II.

The impact analysis will be based on the following standard economic parameters that are also used to calculate so-called performance criteria. The results will be presented under the following headings:

- Impact on Gross Domestic Product (GDP)
- Impact on Capital Utilisation
- Impact on Employment Creation
  - Skilled labourers
  - Semi-skilled labourers
  - Unskilled labourers
- Impact on Households Income (Income distribution)
- Impact on Balance of Payments, as a result of Imports and Exports
- Efficiency Criteria

A brief overview of the definitions of each of these indicators is given in Appendix C to Part II.

As indicated before, the impact analyses will mainly focus on the South African economy but the regional impact on the Western Cape economy will also be dealt with.

In the following section the methodology employed to conduct the range of macro-economic impact analyses is explained in more detail.

9 METHODOLOGY

9.1 Overall Macro-economic Modelling

As indicated, the purpose of the study is to estimate the impact of the wine industry on the South African economy as well as to give an indication the impact it has on the economy of the Western Cape. For purposes of the analysis Conningarth Economists has compiled an updated SAM for South Africa and the Western Cape which formed the basis of the impact model – *viz* – a general equilibrium model. This model will quantify the direct, indirect and induced impacts of the wine industry through its various stages of beneficiation based on 2008 levels of production and consumption, shown in Table 5.

The compilation of the updated South African and Western Cape SAM were part of a major initiative by the Development Bank of South Africa (DBSA), Department of Provincial and Local Government (DPLG), StatsSA and the South African Reserve Bank to compile nine provincial SAMs that have all been updated to 2006 prices and have been benchmarked with the new RSA SAM of 2006. The Western Cape SAM was only

finalized recently (October 2009), and was overseen by an expert group of people from the Western Cape, chaired by the Western Cape Treasury.

The benchmarking exercise was necessary to ensure that all control totals add up to the National Account figures as reflected in the SARB Quarterly Bulletin – June 2008 and the relevant figures reflected in the StatsSA publications, especially P0144 that reflects the 2006 Supply and Use Matrix.

The provincial SAMs compiled by Conningarth Economists were converted into user-friendly macro-economic impact models which can be used by provinces to calculate the economic impact of "interventions" by way of programmes and projects on the economy of the relevant province.

The model makes used of Excel spreadsheets and is driven by a set of "Macros". For a specific project or intervention, the model provides the size of macro-economic impacts which is then also used to calculate key macro-economic performance (or efficiency) indicators at national, provincial and local government level. The model results, based on key macro-economic performance indicators, can be provided for both the construction and operational phases of a specific project.

It is also important to highlight the fact that the macro-economic impact model is robust enough to cater for varying degrees of input data qualities. For instance, if the impacts are required at local government level, the model is tailor-made to adjust relevant provincial coefficients to suit the situation at lower levels.

9.2 Technical Content of the Model

Due to the highly technical nature of the general equilibrium model it was not deemed expedient for the purpose of this study to go into detail regarding this aspect in this part of the report. However, a broad technical outline of the SAM is given in Appendix A to Part II.

To apply the macro-economic model based on the SAM, the so-called model $(I-A)^{-1}$ was necessary to be developed by dividing the SAM into an endogenous and exogenous portion. The model, $(I-A)^{-1}$, is according to the Input-Output theory known as the Leontief Inverse. This is determined by developing a coefficient matrix (A) by the endogenous portion which is then subtracted from a unity matrix (I). This (I-A) matrix is then inverted to form the model - $(I-A)^{-1}$. The coefficients matrix *inter alia* represents the input production structure of the various sectors as well as the expenditure structure of the different household groups defined in the SAM.

By multiplying the inverse matrix, $(I-A)^{-1}$, with the exogenous stimulus the total impact can be calculated. The following formula provides a brief explanation of this process.

$$(\mathrm{I}-\mathrm{A})^{-1}\ x\ Exogenous\ Stimulus = Economic\ Impact$$

The exogenous stimuli putting the model in motion starts off with the monetary values attached to each of the phases of beneficiation in the wine industry identified in Part I. These values are then further disaggregated into the following three components to facilitate "kicking" the model into motion (also referred to as exogenous inputs):

- Firstly, the demand for commodities, for example in the case of primary agriculture, its demand for fertiliser, fuel and pesticides which serve as inputs to its production process.
- The second component refers to the paying of salaries and wages. Also part of the cost of production at every stage of beneficiation. This component is further divided into various race and occupation groups.
- The third component is the Gross Operating Surplus (GOS) generated by a specific economic activity. GOS consists of depreciation, interest paid and net profit which comprises the cost of capital.

In practical terms it was necessary to determine the monetary values (for 2008) of each of the three exogenous stimuli and for each of the five stages of value added (beneficiation), namely Primary Agriculture; Cellars; Manufacturing; Trade, Catering and Accommodation and Tourism, on a wine region basis. This translates into 45 exogenous vectors (i.e. 9 regions per component). An example of one of these exogenous vectors, for primary agriculture in Stellenbosch, is given in Appendix F to Part II.

Therefore, to put the model in motion, the total wine industry (including tourism) was stimulated from outside the model as final demand components, as mentioned above. The implication of this is that a final demand vector for every detail aspect of the model had to be compiled. Each of these components had to be disaggregated on a detail basis, such as turnover, intermediate demand on a product basis, salaries and wages, gross operating surplus, number of workers per skill level, portion of goods and services to be exported, etc. For purposes of this detailed analysis the data supplied by SAWIS was heavily relied upon. The data used includes farming cost structures of each of the wine regions, cost structures of selected cellars and also the producer income for various wine products on a wine region basis. For certain of the input structures, such as manufacturing and trade, catering and accommodation, the Western Cape SAM input structures were used. This is given in more detail on a detailed basis in Appendix G to Part II.

10 PRIMARY DATA AND DATA SOURCES

The main data source that was used by Conningarth Economist for inputs into the model was *South African Wine Industry Statistics* published by SAWIS.

Very important data that needed to structure the model onto the levels of the wine producing regions is shown in the table below. These are the geographic distribution of South African wine grape vineyards per wine region during 2008 as well as the total tonnage of wine produced in each of the wine regions.

Table 10: Geographic Distribution of Wine Grape Vineyards and Wine Tonnage per Wine Region during 2008

Wine Region	Area Hectares	Tonnage
Breedekloof	12 361	223 366
Little Karoo	2 956	40 980
Malmesbury	14 567	131 049
Orange River	5 029	171 664
Olifants River	9 996	220 703
Paarl	16 891	156 015
Robertson	13 898	204 619
Stellenbosch	17 137	121 346
Worcester	8 490	155 871
Total	**101 325**	**1 425 612**

Source: SAWIS Report; Table 5.2 page 8 and Table 6.4(b) page 16

11 MACRO-ECONOMIC IMPACT RESULTS

11.1 Total Economic Impacts on South African and the Western Cape Economies

As mentioned before, the macro-economic impacts emanating from the wine industry in South Africa have been measured in terms of a number of standard macro-economic performance indicators. The tables below show the total impacts on the Gross Domestic Product, Employment Creation, Capital Utilisation, Income Distribution, the Fiscal Impact and the Balance of Payments for both South Africa as well as for the Western Cape.

Table 11: Total Macro-economic Impact of the Wine Industry on South Africa [Rand millions; 2008 prices]

Macroeconomic Indicators	Rand millions
Impact on GDP	**26 223**
Impact on Capital Investment	**49 768**
Impact on Household Income	**17 124**
Low Income	2 908
Medium Income	3 598
High Income	10 618
Fiscal Impact	**8 517**
National Government	7 945
Provincial Government	76
Local Government	496
Impact on Balance of Payments	**12 704**
	Numbers
Impact on Employment	**275 606**
Impact on Skilled Employment	36 551
Impact on Semi-Skilled Employment	78 310
Impact on Unskilled Employment	160 745

Table 12: Total Macro-economic Impact of the Wine Industry on the Western Cape [Rand millions; 2008 prices]

Macroeconomic Indicators	Rand millions
Impact on GDP	**14 214**
Impact on Capital Investment	**29 055**
Impact on Household Income	**8 478**
Low Income	1 528
Medium Income	1 852
High Income	5 098
Fiscal Impact	**3 566**
National Government	3 273
Provincial Government	51
Local Government	242
Impact on Balance of Payments	**5 256**
	Numbers
Impact on Employment	**168 102**
Impact on Skilled Employment	19 427
Impact on Semi-Skilled Employment	48 392
Impact on Unskilled Employment	100 283

Even though the main focus of this study is directed at the wine industry's impact on South Africa as a whole the impact on the Western Cape as such should not be disregarded. This is because the wine industry *per se* is mainly located within the Western Cape. In the rest of this section the impact of the wine industry on the Western Cape economy as such is discussed and compared with the rest of South Africa.

The impact of the wine industry on the Western Cape and RSA differs for three reasons, namely:

- The Orange River region does not form part of the Western Cape Province. Its impact has for this study's purposes been included in the total RSA impact;
- A major portion of the trade, catering and accommodation activities involving wine, falls outside the Western Cape area; and
- A significant portion of the indirect and induced impacts occur is the rest of South Africa due to import leakages from the Western Cape as well as the fact that the major portion of the market for wine is outside the Western Cape.

Some of the salient features of the macro-economic impact measured in terms of GDP, Capital Utilisation and Employment Creation of the wine industry are presented below. The detailed macro-economic impacts originating from the various wine producing areas of the Western Cape are depicted in Appendix D to Part II.

11.1.1 Impact on Gross Domestic Product (GDP)

According to the above tables, in 2008, the wine industry ultimately added R14 214 million to the Western Cape economy. This amounted to approximately 7.3% of the total provincial GDP of the Western Cape[10]. When assessing the contribution that was made to the national economy's GDP, an amount of R26 223 million or 1.95% was added to the South African economy[11].

[10] Provincial GDP for the Western Cape = R193 418 million.
[11] GDP for South Africa = R1 343 056 million

11.1.2 Impact on Capital Utilization

Productive capital assets are required to support or generate any given amount of economic activity (i.e. GDP). These capital assets, together with labour and entrepreneurship, form the basic productive factors needed for production. Obviously the effectiveness and efficiency with which these factors are combined will determine the overall level of productivity and profitability of such assets. The latter will in turn depend on a whole array of factors, of which the appropriate technology and skills content of the labour force are important. The above tables indicate the following:

- The overall capital base needed to sustain the present level of wine production in the Western Cape amounted to R29 055 million, of which, R5 214 million, R902 million and R4 881 million are directly invested in primary agriculture, cellars and the manufacturing process, respectively.
- R49 768 million is needed in the rest of the South African economy to sustain the present level of wine production at all the value chain stages.

11.1.3 Impact on Employment Creation

As indicated previously, capital together with labour and entrepreneurship form the primary productive factors needed for wine production. The manpower requirements (man years, also providing for seasonal workers), in terms of people employed in the wine industry are shown in the tables above. The model provided for the total impacts for every level of beneficiation as well as for each production area from which it originates. From the tables above it can be seen that the wine industry's operations are sustaining of about 168 102 and 275 606 jobs in the Western Cape and South Africa, respectively. This employment impact represents about 8.8% of the total employment in the Western Cape and about 2.2% of the total employment in the rest of South Africa[12]. It is important to note that these percentages are higher than those of GDP mainly because of variations in capital intensities of production processes between the two regions.

11.1.4 Comparison between Impacts on the Western Cape and Rest of South Africa

About 54% of the impacts of the wine industry, taking into account all forward and backward linkages, falls in the Western Cape and the 46% fall within the rest of South Africa. The results for the various components are shown in the table below.

Table 13: Impact of Different Phases of the Wine Producing and Selling Chain Inside the Western Cape and Outside the Region (GDP)

Economic Sector	Western Cape	Rest of South Africa	Total
Primary Agriculture	64%	36%	**100%**
Cellars	52%	48%	**100%**
Manufacturing	71%	29%	**100%**
Wholesale and Retail Trade	39%	61%	**100%**
Tourism	53%	47%	**100%**
Total	**54%**	**46%**	**100%**

[12] Total number of jobs in the Western Cape is 1 909 729 and in South Africa is 12 364 243.
Data Source: Community Survey 2007, by Province, Populations Group and Employment.

Table 14: Impact of Different Phases of the Wine Producing and Selling Chain Inside the Western Cape and Outside the Region (Labour)

Economic Sector	Western Cape	Rest of South Africa	Total
Primary Agriculture	83%	17%	**100%**
Cellars	65%	35%	**100%**
Manufacturing	72%	28%	**100%**
Wholesale and Retail Trade	51%	49%	**100%**
Tourism	58%	42%	**100%**
Total	**61%**	**39%**	**100%**

It is interesting to note that the impact on the rest of South Africa of the wine industry is more or less the same than in the Western Cape itself which again demonstrates the high levels of "leakages" that the Western Cape has to endure *viz a viz* the rest of the RSA.

It is also interesting to note that when looking at the GDP impacts in particular in the Western Cape compared to the rest of South Africa, the impact on the Western Cape is higher.

11.1.5 Comparison of Impact between Provinces

As already explained the wine industry makes use of various inputs directly and indirectly such as fertilizer, fuel and even inputs that are being consumed by labourers involved in one or other way in the value chain of the wine industry. Some of these inputs will originate from the Western Cape however; several of these inputs will be sourced from outside of the Western Cape. This additional demand outside the Western Cape will prompt economic activity in the various provinces of South Africa. In this section an estimation is done of the provincial impact of the total wine industry (total "bottle-of-wine" as described previously).

The table below estimates the impact that the wine industry will have on the various provinces through its backward linkages taking into account all the components of the wine industry.

Table 15: Provincial Impacts

Province	Rand millions	Number	Percentage	
	GDP	Labour	GDP	Labour
Eastern Cape	2 379	20 837	9%	8%
Free State	1 063	9 909	4%	4%
Gauteng	3 723	34 276	14%	12%
KwaZulu-Natal	1 694	16 340	6%	6%
Limpopo	450	3 962	2%	1%
Mpumalanga	474	4 399	2%	2%
Northern Cape	1 987	15 442	8%	6%
North-West	238	2 340	1%	1%
Western Cape	14 214	168 102	54%	61%
Total	**26 223**	**275 606**	**100%**	**100%**

The above table indicates that, in 2008/09, with regard to the wine industry's impact on the rest of South Africa, Gauteng drew the largest portion, followed by the Eastern Cape. The provincial impacts were done by making use of a gravity model on a commodity basis with regard to the intermediate demand for certain products. A gravity model is based on two variables, namely size of an industry as well as the distance between the origin of the product demand, and the possible supplier of the product.

12 COMPONENTS OF THE DIFFERENT STAGES OF BENEFICIATION OF THE WINE INDUSTRY IN SOUTH AFRICA

The analyses of the components of the wine industry actually focuses on the value chain, which constitutes the production, distribution and selling of wine locally and abroad. Although a major portion of actual economic value added through the process of beneficiation takes place in the Western Cape, a substantial part thereof will occur in other parts of the country, mainly through the trade and accommodation components.

At the retail level a large portion of the sale of alcoholic beverages is directed at the organised leisure market, i.e. people visiting restaurants, hotels, clubs, etc. This is also where the tourism market is becoming increasingly important.

Chart 1: Value Chain of Wine Dependent GDP in South Africa

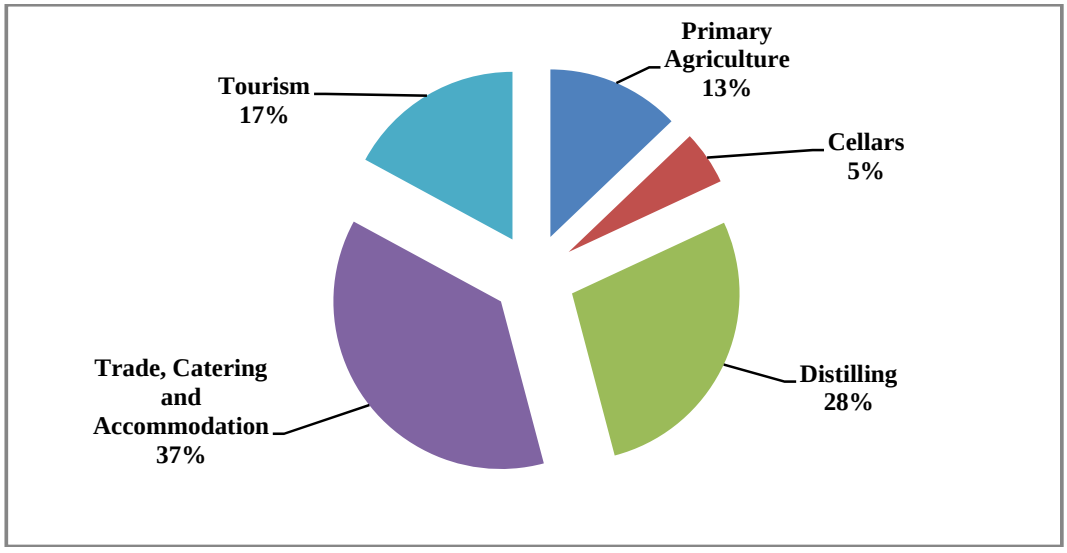
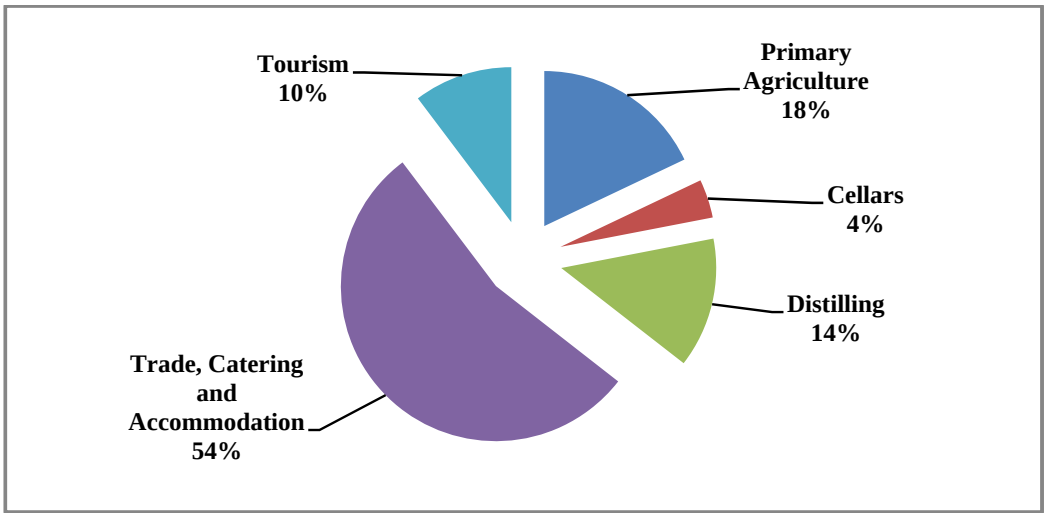


Chart 2: Value Chain of Wine Dependent Employment in South Africa



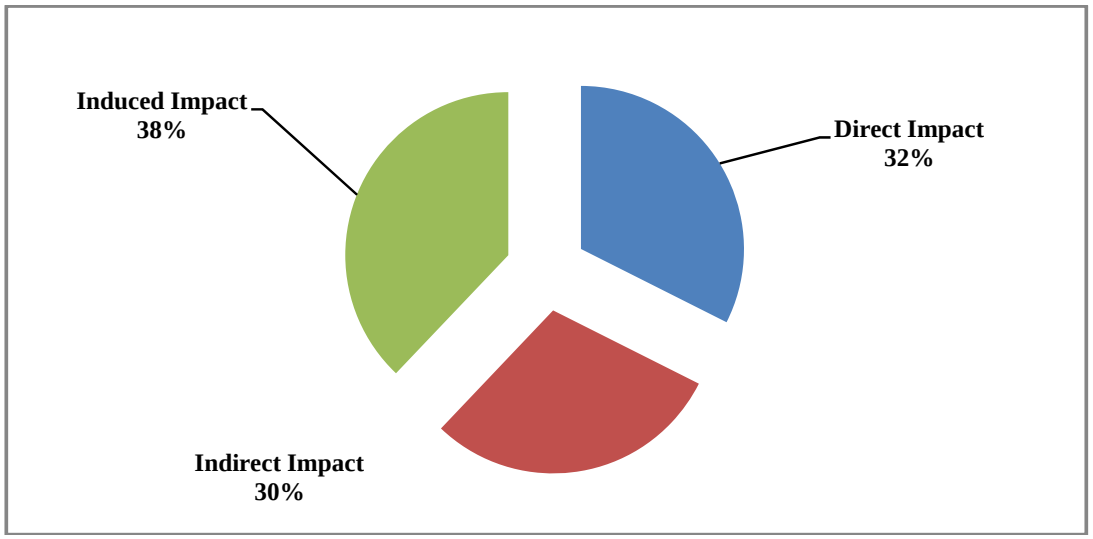
From these pie-charts a few interesting deductions can be made, namely:

- Although the impact at farm level is important, the largest impact on GDP and even more on employment is from the higher levels of value added such as trade, catering and accommodation and to a lesser extent tourism.
- On the other hand, the relative importance of the primary sector in terms of employment creation is also visible if the importance of the primary sector in terms of employment creation is compared to GDP, 18% and 13% respectively.
- The manufacturing sector also plays an important role when looking at employment creation compared to GDP, 14% and 28% respectively.

13 BACKWARD LINKAGES OF THE WINE INDUSTRY IN SOUTH AFRICA BASED ON THE KIND IMPACT

The figure below presents a proportional breakdown of the wine industry's direct, indirect and induced impacts.

Chart 3: Wine Industry's Direct, Indirect and Induced GDP Impact



The importance of the multiplier effects through its linkages with other sectors in the economy in terms of the buying of materials, the paying of salaries and wages and the resulting expenditure on consumer goods are evident from the above chart. The direct effect constitutes about 32% of its overall contribution relative to the 68% that resulted from the indirect and induced effects combined.

14 SECTORAL IMPACT OF THE WINE INDUSTRY IN SOUTH AFRICA

The sectoral impact analysis measures the nature and magnitude of the wine industry's impact on all other economic sectors in the South African economy such as the agricultural sector, mining, manufacturing, etc. The table given below shows the impact in terms of GDP for the 9 main sectors in the economy. More detailed information is given in Appendix E to Part II. These tables reflect how the GDP in each sector is impacted upon by production activities in the wine industry in South Africa.

A few aspects with regard to the sectoral impacts need to be noted, and are as follows:

Primary Agriculture

The primary agriculture impact depicts the impact that will occur on the farm itself as well as in the industries which supply inputs directly and indirectly to the wine farmers. This refers to products like fertilizer; electricity; fuel, etc. as well as consumption by labourers working on the wine farms. Consumption by labourers will directly and indirectly effect people that work in bakeries, clothing factories that are indirectly impacted upon by the primary agriculture through the payment of salaries.

Cellars

Cellars also have a big intra impact, reflecting the process of the beneficiation of wine "in-house".

Manufacturing

The manufacturing part of the wine industry has a more evenly spread backward linkage structure than cellars, reflecting a more specialised process of wine making and manufacturing (more capital intensive and technology driven). As can be expected, the largest impact is on the manufacturing sector itself, again reflecting the large measure of value added that takes place within the wine making process itself (packaging, labelling, bottling, distribution, etc.).

Trade, Catering and Accommodation

The sector's impact structure portrays the classic business activity relating to trade. For example, 67% of the GDP impact is within the sector itself, again reflecting the whole range of "in-house" value added activities (including some of the activities listed under manufacturing) that take place in the trade and accommodation sectors.

Tourism

The tourism GDP impact is much more widespread over the sectoral range in the economy, the largest impact being on trade and accommodation activities as well as transport, which is understandable.

Total

In its totality, the wine industry's sectoral impact structure reflects the "weighted average" of all the sub-sectors combined. It is important to note that the GDP impact coefficients make allowance for import "leakages" from overseas. The sectoral impacts therefore only reflect the impacts on the domestic production of the supplying sectors.

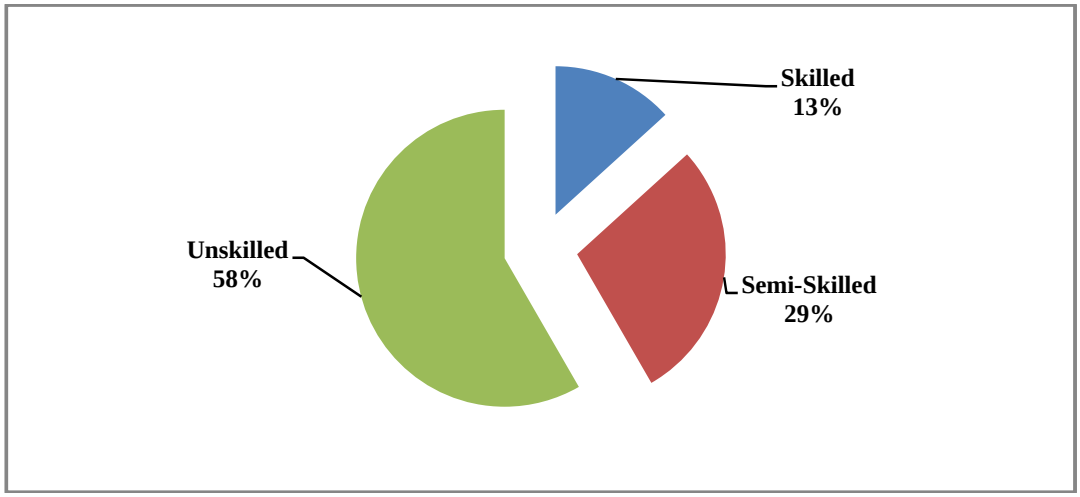
Table 16: GDP: Sectoral Impact on South Africa [Rand millions; 2008 prices]

	Rand Millions						Percentages					
	Primary			Trade, Catering			Primary			Trade, Catering		
	Agriculture	Cellars	Manufacturing	and Accommodation	Tourism	Total	Agriculture	Cellars	Manufacturing	and Accommodation	Tourism	Total
Agriculture	1 412	388	3 197	3 694	166	8 857	42%	28%	44%	38%	4%	34%
Mining	58	28	70	100	71	327	2%	2%	1%	1%	2%	1%
Manufacturing	449	206	931	956	780	3 322	13%	15%	13%	10%	17%	13%
Electricity and Water	114	42	122	167	133	578	3%	3%	2%	2%	3%	2%
Construction	99	22	103	150	62	436	3%	2%	1%	2%	1%	2%
Trade and Accommodation	292	129	739	967	959	3 087	9%	9%	10%	10%	21%	12%
Transport and Communication	199	99	481	969	844	2 592	6%	7%	7%	10%	19%	10%
Financial and Business Services	583	382	1 311	2 231	1 127	5 634	17%	28%	18%	23%	25%	21%
Community Services	166	73	336	476	339	1 389	5%	5%	5%	5%	8%	5%
Total	**3 373**	**1 368**	**7 291**	**9 709**	**4 481**	**26 223**	**100%**	**100%**	**100%**	**100%**	**100%**	**100%**

15 EMPLOYMENT IMPACT PER SKILL CATEGORY OF THE WINE INDUSTRY IN SOUTH AFRICA

Table 11 shows that the wine industry's activities in South Africa sustained about 275 606 employment opportunities during 2008. The figure below reflects a breakdown of these employment opportunities by skill category.

Chart 4: Employment Creation by Skill Category, 2008



The figure above indicates that more than half of the employment created as a result of the wine industry's impact on the South African economy were in the unskilled category, with a further 29% being in the semi-skilled category, and the remaining 13% in the skilled category.

The high impact that the wine industry has on unskilled labour should be viewed positively given the high unemployment rate in South Africa, especially with regard to unskilled people. The main reason for this is the large number of unskilled farm workers involved, as well as the salaries generated at all levels of the economy and the indirect impact this again has on sectors that are relatively labour intensive.

16 CAPITAL INVESTMENT IN SOUTH AFRICA SUPPORTING ALL THE LEVELS OF THE WINE INDUSTRY (VALUE - AND SUPPLY CHAIN)

An aspect that has to be well understood when the effectiveness and efficiency of investment in a particular sector is considered is that an additional amount of capital has to be invested by other sectors in the economy to sustain the supply of materials and other goods and services to the sector in question (in this case the wine industry). The primary agriculture sector's required investment is estimated at about R5 214 million, to sustain the entire downstream system of sectors that is dependent on the agriculture sector. Through the value and supply chain a total capital investment of about R49 768 million is necessary, which translates to a multiplier of almost 10.

Table 17: Capital Impact on South Africa [Rand millions; 2008 prices]

	Values				Percentage			
Economic Sector	**Direct**	**Indirect**	**Induced**	**Total**	**Direct**	**Indirect**	**Induced**	**Total**
Primary Agriculture	5 214	1 388	2 662	9 264	56%	15%	29%	100%
Cellars	902	896	1 100	2 898	31%	31%	38%	100%
Manufacturing	4 881	2 681	5 344	12 907	38%	21%	41%	100%
Trade, Catering and Accommodation	2 674	5 179	7 569	15 422	17%	34%	49%	100%
Tourism	0	5 850	3 426	9 276	0%	63%	37%	100%
Total	**13 672**	**15 994**	**20 102**	**49 768**	**27%**	**32%**	**40%**	**100%**

17 POVERTY ALLEVIATION PER PHASE OF BENEFICIATION OF THE WINE INDUSTRY IN SOUTH AFRICA

One of the crucial elements of any macro-economic impact assessment in South Africa is to determine whether it has a positive impact on poverty alleviation. The extent to which poverty alleviation is in fact accomplished by the wine industry is measured by way of its impacts on household incomes, specifically whether the low income households will benefit.

The impact on low income households in South Africa is presented in the table below.

Table 18: Poverty Alleviation per Component in South Africa [Rand millions; 2008 prices]

Economic Sector	Low	Medium	High	Total
Primary Agriculture	415	504	1 351	2 270
Cellars	155	197	587	939
Manufacturing	763	963	2 835	4 560
Trade, Catering and Accommodation	1 087	1 336	4 017	6 439
Tourism	489	598	1 829	2 916
Total	**2 908**	**3 598**	**10 618**	**17 124**

From the table it is evident that nearly R17 124 million is benefited by households in South Africa because of the presence of the wine industry. Of this amount approximately R2 908 million went to low-income households.

18 THE WINE INDUSTRY'S BALANCE OF PAYMENTS IMPACTS FOR THE NATIONAL ECONOMY

It is estimated that the positive impact from the wine industry on the national and Western Cape's Economies' Balance of Payments amounts to approximately R12 704 million and R5 256 million per annum, respectively. The methodology used for these calculations are relatively crude, but does at least indicate whether a positive or negative impact on the Balance of Payments can reasonably be expected. It is important to note that in this context, exports and imports are considered at a national and provincial level, and comprise all transactions across the boundaries of South Africa and the Western Cape.

The tables below give a summary of the impact on the Balance of Payments of the National Economy as well as the Western Cape.

Table 19: Impact on the Balance of Payments of the National Economy [Rand millions; 2008 prices]

Import substitution	10 225
Exports	9 728
Minus: Direct Imports	-101
Minus: Indirect Imports	-7 148
Balance of Payments	12 704

Table 20: Impact on the Balance of Payments of the Western Cape Economy [Rand millions; 2008 prices]

Import substitution (use of wine in the Western Cape)	8 165
Exports	8 208
Minus: Direct Imports	-133
Minus: Indirect Imports	-10 984
Balance of Payments	5 256

19 EFFICIENCY LEVELS OF THE WINE INDUSTRY

In order to provide some indication of the efficiency with which the wine industry employs scarce productive sources, the table below provides a number of criteria that can be used to compare the efficiency of its investment with the same amount of money in other economic sectors. The particular efficiency ratios used are:

- A GDP/Capital ratio, which measures the additional GDP that could be, generated from the investment of R1 million in capital in the various sectors.
- A Labour/Capital ratio, which measures the number of additional employment opportunities that can be created from the investment of R1 million in capital in the various sectors.
- A Low Income Households/Total Household ratio, which measures the proportion of total income flowing to all households that will accrue to low income households.

The data in the following table indicates that a unit of investment in the wine industry is slightly more efficiently utilized than the average for the total economy, as far as GDP and household income is concerned, but much higher in terms of labour. For labour it gives a ratio of 5.54 for the wine industry compared to 3.18 for the entire South Africa. When compared to agriculture in general, it also compares favourably.

Table 21: Efficiency of the Impact of the Wine Industry on the National Economy in terms of Capital Utilization and Poverty Alleviation

			Low Income
	GDP/Capital	Labour/Capital	Households/Total
	Ratio	Ratio	Household Ratio
Total Wine Industry Impact on South Africa	**0.53**	**5.54**	**0.17**
Impact in the invent that a similar amount, as invested in the wine industry, is invested in the main sectors			
Agriculture, Hunting, Forestry and Fishing	0.39	4.48	0.18
Mining and Quarrying	0.41	3.40	0.18
Manufacturing	0.44	2.98	0.17
Electricity, Gas and Water	0.19	0.93	0.17
Construction	0.63	7.57	0.17
Wholesale and Retail Trade	0.59	5.09	0.17
Transport, Storage and Communication	0.30	1.69	0.16
Financial, Insurance, Real Estate and Business Services	0.40	1.87	0.15
Community, Social and Personal Services	0.80	4.19	0.14
Total Western Cape Economy	**0.46**	**3.18**	**0.16**

20 CONCLUSION

20.1 Overall Developments

A number of important developments played themselves out over the period 2003 – 2008 in the wine industry. As was foreseen in the previous study (2003) that a major surge in red wine production occurred. In fact as percentage of total plantings it increased from 18% in 2003 to 44% in 2008.

In Part I it was also indicated that the local demand for red wine did not increase to the same extend that was foreseen earlier. This led to downward pressures on producer's prices especially received for red wine grapes which compounded the financial bind that producers found themselves in. Fortunately, for the wine industry white wine prices held up well and exports of white wine nearly doubled in volume terms between 2003 and 2008. Nevertheless, as far as the red wine production position is concerned, all indications are that a more balanced situation has been reached and that the surplus stocks have been worked down to more acceptable levels.

The export part of the winemaking business continuously has to contend with strong competition from other "new world" exporters who find themselves in much the same position. In addition, South African producers also have to content with volatile exchange rates. Except for the latter part of 2008 over to 2009 the Rand/Pound exchange rate worked in favour of local producers.

Tourism still plays an important role in an indirect way supporting the wine industry. Indications are that this will increase in future. Especially from the side of foreign tourists who not only stay longer in the Western Cape than local tourists, but also spend a lot more. However, more research is needed to actually unlock this potential income source to its maximum concerning the wine industry.

20.2 Impact Results

In this study the consultants made use of a new general equilibrium macro-economic model that is believed to be more suitable for impact analyses. The model is also based on

the new South African and Western Cape Social Accounting Matrices (SAMs) compiled for 2006. Together with the National SAM and SAM's for all the other provinces, it was in a much better position to measure impacts on South Africa and the Western Cape's economy.

Important impacts on the Western Cape and the national economy:

- The total capital asset base (directly, indirectly and induced) of the wine industry is estimated at R49 768 million. The corresponding number of employment opportunities sustained by the wine industry amounts to a significant 275 606. The major part of course to be found in the trade, catering and accommodation and transport sectors.
- In terms of GDP, the annual total impact (direct, indirect and induces) of the wine industry in the Western Cape amounts to R14 214 million, which is 7.3% of the Western Cape's GDP in 2008.
- The wine industry generates an amount of R17 124 million private disposable income, of which about 17% is destined for the low income.
- A unit of investment in the wine industry is slightly more efficiently utilized than the average for the total economy, as far as GDP is concerned, but much higher in terms of labour. For labour it gives a ratio of 5.54 for the wine industry compared to 3.18 for South Africa. When compared to agriculture in general, it also compares favourably.
- Lastly, concerning the regional distribution of the wine industry's economic impact it was interesting to find that as far as the GDP is concerned, the Western Cape/South Africa economy ratio is 54:46. In the labour field the ratio is more in the region of 60:40.

In summary one can say that the impact study again demonstrates the ability of the wine industry to adapt to a fast changing production and marketing environment and to survive financially. The major export drive was essential in this regard. However, there are signs already that conditions will still be tough ahead and that the industry would need extra drive and vision to maintain its competitive edge locally and overseas.

APPENDICES TO PART II

21 APPENDIX A: SOCIAL ACCOUNTING MATRIX

21.1 The Social Accounting Matrix

A Social Accounting Matrix (SAM) is a comprehensive, economy-wide database, which contains information ON the flow of resources that take place between the different economic agents that exist within an economy (i.e. business enterprises, households, government, etc) during a given period of time – usually one calendar year.

When economic agents in an economy are involved in transactions, financial resources change hands. The SAM provides a complete database of all transactions that take place between these agents in a given period, thereby presenting a "snapshot" of the structure of the economy for that time period. As a system for organising information, a SAM presents a powerful tool in terms of which the economy can be described in a complete and consistent way:

- Complete in the sense that it provides a comprehensive accounting of all economic transactions for the entity being represented (i.e. country, region/province, city, etc.), and
- Consistent in that all incomes and expenditures are matched.

Consequently, a SAM can provide a unifying structure within which the statistical authorities can compile and present the national accounts.

Like the traditional Input-Output Table, the SAM reflects the inter-sectoral linkages in terms of sales and purchases of goods and services, as well as the remuneration of production factors that forms the essence of any economy's functioning. What is also of importance is that a SAM reflects the economic related activities of households in some detail. Households are responsible for decisions that have a direct and indirect effect on important economic variables such as private consumption expenditures and savings. These economic aggregates are important drivers of the economic growth processes and ultimately the creation of employment opportunities and wealth. Private consumption expenditure, for example, comprises approximately 60 percent of total gross final domestic spending in the economy. By combining households into meaningful categories, such as a range of income levels, the impact on these households' welfare of a changing economic environment is made possible by the SAM.

It is clear from the above that because of the intrinsic characteristics of the SAM, once compiled, it renders itself as a useful tool for analytical purposes. Especially, based on the mathematical traits of the matrix notations that describe its structure, a SAM can be transformed into a powerful econometric tool/model. For example, the model can be used to quantify the probable impact on the economy of a new infrastructural project such as a new power station – both the construction phase and the operational phase will be modelled.

Thus apart from serving as an extension to a country's National Accounts, the SAM in its model form opens up many opportunities for the economic analyst to conduct rigorous

policy and other impact analyses for the purpose of ensuring optimal benefit to the stakeholders concerned.

21.2 Application of the SAM

The development of the SAM is very significant as it provides a framework within the context of the International System of National Accounts (SNA) in which the activities of all economic agents are accentuated and prominently distinguished. By combining these agents into meaningful groups, the SAM makes it possible to clearly distinguish between groups, to research the effects of interaction between groups, and to measure the economic welfare of each group. There are two key reasons for compiling a SAM:

- Firstly, a SAM provides a framework for organising information about the economic and social structure of a particular geographical entity (i.e. a country, region or province) for a particular time period (usually one calendar year), and
- Secondly, to provide a database that can be used by any one of a number of different macro-economic modelling tools for evaluating the impact of different economic decisions and/or economic development programmes.

Because the SAM is a comprehensive, disaggregated, consistent, and complete data system of economic entities that captures the interdependence that exists within a socio-economic system, it can be used as a conceptual framework for exploring the impact of exogenous changes in such variables as exports, certain categories of government expenditure, and investment on the entire interdependent socio-economic system. In this regard, sophisticated macro-econometric models, such as the Computable General Equilibrium models (CGEs). The SAM, because of its finer disaggregation of private household expenditure into relatively homogenous socio-economic categories that are recognisable for policy purposes, has been used to explore issues related to income distribution.

The SAM's main contribution in the field of economic policy planning and impact analysis is divided into two categories:

a. As a Primary Source of Economic Information

As a detailed and integrated national and regional accounting framework consistent with officially published socio-economic data, a SAM instantly projects a picture of the nature of a country or region's economy. It lends itself to both descriptive and structural analysis.

b. As a Planning Tool

Due to its mathematical/statistical underpinnings it can be transformed into a macro-econometric model that can be used to:

- Conduct economic forecasting exercises/scenario building.
- Conduct economic impact analysis both for policy adjustments at a national and provincial level and for large project evaluation.
- Conduct self-sufficiency analysis i.e. gap analysis to determine, with the help of the inter industry and commodity flows contained in the provincial SAM, where possible investment opportunities exist, and

- Calculate the inflationary impacts on provincial level of price changes instigated at national level (i.e. administered prices, VAT, etc.).

To summarise, the SAM mechanism provides a universally acceptable framework within which the economic impact of development projects and policy adjustments can be reviewed and assessed at both national and provincial/regional levels. It serves as an extension to the official National Accounts of a country's economy and, therefore, provides a wealth of additional information, especially when disaggregated to more detailed levels.

22 APPENDIX B: MAGNITUDE OF LINKAGES

Formally, economists distinguish between direct, indirect and induced economic effects. Indirect and induced effects are sometimes collectively called secondary effects. The total economic impact is the sum of direct, indirect and induced effects within a region. Any of these impacts may be measured in terms of gross output or sales, income, employment or value added.

Direct Impacts

The direct impacts refer to the effect of the activities that take place in the wine industry. It refers to the income and expenditure that is associated with the everyday operation of each of the components of the wine industry. For instance if the cellar component is taken as an example the direct impacts refer to the total production/turnover of the cellars; the intermediate goods bought by the cellars; the salaries and wages paid by the cellars; the profits generated by the cellars.

Indirect Impacts

The indirect impacts refer to economic activities that arise in the sectors that provide inputs to the wine industry components and other backward linked industries. For example, if the primary agriculture sector uses fertilizer, the indirect impacts refer to the activity (paying of salaries and wages; and profit generation) that occurs in the fertilizer sector as well as the sectors that provide materials to the fertilizer sector.

Induced Impacts

Induced impacts refer, *inter alia*, to the economic impacts that result from the payment of salaries and wages to people who are (directly) employed at the various consecutive stages of beneficiation of the wine industry. In additional the induced impact also includes the salaries and wages paid by businesses operating in the sectors indirectly linked to the wine industry through the supply of inputs. These additional salaries and wages lead to an increased demand for various consumable goods that need to be supplied by other sectors of the economy who then have to raise their productions in tandem with the demand for their products and services.

These induced impacts can then be expressed in terms of their contributions to GDP, employment creation and investment or other useful macro-economic variables.

Added together, the direct, indirect and induced impacts provide the total impact that the wine industry will have on the RSA and Western Cape economies.

23 APPENDIX C: DEFINITIONS OF MACRO-ECONOMIC AGGREGATES

Impact analysis will be based on a number of standard economic parameters and the results will be presented under the following headings:

- Impact on Gross Domestic Product (GDP)
- Impact on Capital Utilisation
- Impact on Employment Creation
  - Skilled labourers
  - Semi-skilled labourers
  - Unskilled labourers
- Impact on Households Income (Income distribution)
- Impact on Balance of Payments, as a result of Imports and Exports
- Efficiency Criteria

The following is a brief overview of the definition of each of these economic parameters.

A. Impact on Gross Domestic Product (GDP)

The impact on GDP reflects the magnitude of the values added to the wine industry from activities within the industry. Value added is made up of three elements, namely:

- Remuneration of employees,
- Gross operating surplus (which includes profit and depreciation), and
- Net indirect taxes

B. Impact on Capital Utilisation

For an economy to operate at a specific level of activity, investment in capital assets (i.e. buildings, machinery, equipment, etc.) is needed. Capital, together with labour and entrepreneurship, are the basic factors needed for production in an economy.

The effectiveness and efficiency with which these factors are combined influence the overall level of productivity/profitability processes, bearing in mind that productivity is affected by an array of factors of which appropriate technology and skill level of the labour force are two important elements.

C. Impact on Employment Creation

Labour is a key element of the production process. The study will determine the number of new employment opportunities that will be created by investment in the wine industry. These employment opportunities will be broken down into those created directly by a particular project and those indirectly created and induced throughout the broader economy. Furthermore, a distinction will be made between skilled, semi-skilled and unskilled labourers.

D. Impact on Household Income

One of the elements of the additional value added (i.e. GDP) which will result from the proposed expansion is remuneration of employees, which, in turn, affects households income.

The SAM measures the magnitude of changes that will occur to both household income and spending/savings pattern. As such, the study will highlight the impact of the wine industry on the low-income households as this can be used as an indicator of the extent to which the wine industry contributed to poverty alleviation throughout the economy.

E. Impact on the Current Account of the Balance of Payments

The wine industry will have direct, indirect and induced impacts on the exports and imports of goods and services that will take place across all of the various economic sectors that are affected by the wine industry. Imports consist of direct and indirect material imports, as well as goods consumed by households that are imported as a result of the induced impact.

F. Effectiveness Criteria

The macro-economic impact of a project is evaluated in terms of effectiveness criteria that measure the extent to which the project utilises resources efficiently. Since capital is a scarce resource in the Western Cape and South Africa, the effectiveness of the utilisation of capital in terms of labour (i.e. new job opportunities) and GDP creation in relation to the total South African economy, is used as a measure of economic effectiveness. These effectiveness criteria are the most reliable indicators as to whether the wine industry is effective or not.

In order to make these comparisons, two key multipliers/ratios are calculated i.e.

- The Gross Domestic Product (GDP)/Capital ratio (GDP/Capital ratio), and
- The Labour/Capital ratio.

Using these ratios, the contribution towards economic growth and job creation relative to the capital employed in the process can be established. If the decision maker considers continuous, long-term economic growth to be more important than job creation in the short-term, then the GDP/Capital ratio is the more important one of the two measures of macro-economic effectiveness. On the other hand, if job creation, particularly in the short-term, has priority, the Labour/Capital ratio is more important.

24 APPENDIX D: DETAILED MACRO-ECONOMIC IMPACT OF WINE INDUSTRY

Table 22: GDP Generated in the Western Cape through Forward and Backward Linkages of the Wine Industry of the Western Cape [Rand millions; 2008 prices]

			Little		Olifants	Orange						Current
		Breedekloof	Karoo	Malmesbury	River	River	Paarl	Robertson	Stellenbosch	Worcester	Total	Percentage
A. Primary Agriculture	Direct GDP Impact	166	41	142	141	0	242	187	321	120	**1 360**	
	Indirect GDP Impact	45	13	33	48	0	57	53	78	35	**362**	
	Induced GDP Impact	55	14	45	48	0	78	62	106	41	**448**	
	Total GDP Impact	266	67	221	236	0	377	302	505	195	**2 170**	**15%**
B. Cellars	Direct GDP Impact	42	11	38	65	0	46	55	36	29	**322**	
	Indirect GDP Impact	26	7	28	46	0	33	37	26	18	**221**	
	Induced GDP Impact	20	6	20	34	0	24	28	19	14	**165**	
	Total GDP Impact	89	24	86	145	0	103	119	80	62	**707**	**5%**
C. Manufacturing	Direct GDP Impact	241	120	226	178	0	770	369	800	278	**2 982**	
	Indirect GDP Impact	100	50	94	74	0	319	153	332	116	**1 237**	
	Induced GDP Impact	80	40	75	59	0	254	122	265	92	**986**	
	Total GDP Impact	421	209	395	310	0	1 343	644	1 397	486	**5 205**	**37%**
D. Trade, Catering and Accommodation	Direct GDP Impact	164	82	155	122	0	527	253	548	190	**2 041**	
	Indirect GDP Impact	69	34	65	51	0	221	106	230	80	**856**	
	Induced GDP Impact	68	34	64	51	0	219	105	228	79	**849**	
	Total GDP Impact	302	150	284	223	0	968	463	1 006	348	**3 746**	**26%**
E. Wine Industry = (A+B+C+D)	Direct GDP Impact	614	253	562	505	0	1 585	864	1 705	617	**6 705**	
	Indirect GDP Impact	240	104	220	219	0	630	349	665	248	**2 675**	
	Induced GDP Impact	223	93	205	191	0	576	316	618	226	**2 448**	
	Total GDP Impact	1 078	450	986	915	0	2 791	1 529	2 988	1 091	**11 828**	**83%**
F. Tourism[13]	Direct GDP Impact	0	0	0	0	0	0	0	0	0	**0**	
	Indirect GDP Impact	148	74	140	110	0	476	228	495	171	**1 841**	
	Induced GDP Impact	44	22	41	33	0	141	67	147	51	**545**	
	Total GDP Impact	192	96	181	142	0	617	295	641	222	**2 386**	**17%**
G. Grand Total = (E+F)	Direct GDP Impact	614	253	562	505	0	1 585	864	1 705	617	**6 705**	
	Indirect GDP Impact	389	178	359	329	0	1 106	577	1 160	419	**4 516**	
	Induced GDP Impact	267	115	246	224	0	717	384	764	277	**2 994**	
	Total GDP Impact	1 270	546	1 167	1 057	0	3 408	1 824	3 629	1 313	**14 214**	**100%**

[13] The direct impact of tourism is included as part of the indirect impact.

Table 23: GDP Generated in South Africa through Forward and Backward Linkages of the Wine Industry of the Western Cape [Rand millions; 2008 prices]

			Little		Olifants	Orange						Current
		Breedekloof	Karoo	Malmesbury	River	River	Paarl	Robertson	Stellenbosch	Worcester	Total	Percentage
A. Primary Agriculture	Direct GDP Impact	167	41	143	141	73	243	188	322	120	**1 438**	
	Indirect GDP Impact	74	20	54	75	31	94	87	127	56	**619**	
	Induced GDP Impact	152	38	128	131	66	219	172	300	112	**1 316**	
	Total GDP Impact	393	99	325	347	170	555	447	749	288	**3 373**	**13%**
B. Cellars	Direct GDP Impact	42	11	38	65	50	46	55	36	29	**373**	
	Indirect GDP Impact	46	12	49	82	64	58	62	45	32	**451**	
	Induced GDP Impact	58	16	58	97	75	68	78	53	40	**544**	
	Total GDP Impact	146	39	145	244	190	172	196	134	102	**1 368**	**5%**
C. Manufacturing	Direct GDP Impact	242	120	227	178	140	771	370	802	279	**3 127**	
	Indirect GDP Impact	118	58	110	87	68	375	180	390	137	**1 524**	
	Induced GDP Impact	205	101	191	150	118	651	312	676	236	**2 640**	
	Total GDP Impact	564	279	528	415	327	1 797	862	1 868	651	**7 291**	**28%**
D. Trade, Catering and Accommodation	Direct GDP Impact	274	137	258	203	160	879	421	914	317	**3 563**	
	Indirect GDP Impact	185	92	174	137	108	592	284	616	213	**2 401**	
	Induced GDP Impact	288	144	272	213	168	924	443	961	333	**3 745**	
	Total GDP Impact	747	372	704	553	436	2 396	1 147	2 491	862	**9 709**	**37%**
E. Wine Industry = (A+B+C+D)	Direct GDP Impact	725	308	666	587	424	1 940	1 034	2 073	745	**8 502**	
	Indirect GDP Impact	424	183	387	381	271	1 119	613	1 178	438	**4 995**	
	Induced GDP Impact	702	298	648	591	427	1 862	1 005	1 991	721	**8 245**	
	Total GDP Impact	1 851	790	1 702	1 559	1 122	4 921	2 652	5 242	1 904	**21 742**	**83%**
F. Tourism[14]	Direct GDP Impact	0	0	0	0	0	0	0	0	0	**0**	
	Indirect GDP Impact	214	107	202	159	125	688	329	715	247	**2 786**	
	Induced GDP Impact	130	65	123	97	76	418	200	435	151	**1 695**	
	Total GDP Impact	345	172	325	255	201	1 106	530	1 150	398	**4 481**	**17%**
G. Grand Total = (E+F)	Direct GDP Impact	725	308	666	587	424	1 940	1 034	2 073	745	**8 502**	
	Indirect GDP Impact	638	290	589	539	396	1 807	943	1 893	685	**7 781**	
	Induced GDP Impact	833	363	771	688	503	2 280	1 205	2 426	871	**9 940**	
	Total GDP Impact	2 196	961	2 026	1 814	1 323	6 027	3 181	6 392	2 302	**26 223**	**100%**

[14] The direct impact of tourism is included as part of the indirect impact.

Table 24: Capital Needed in the Western Cape to Support Forward and Backward Linkages of the Wine Industry of the Western Cape [Rand millions; 2008 prices]

			Little		Olifants	Orange						Current
		Breedekloof	**Karoo**	**Malmesbury**	**River**	**River**	**Paarl**	**Robertson**	**Stellenbosch**	**Worcester**	**Total**	**Percentage**
A. Primary Agriculture	Direct Capital Impact	639	168	504	611	0	842	740	984	440	**4 929**	
	Indirect Capital Impact	120	37	83	143	0	154	145	203	97	**980**	
	Induced Capital Impact	124	31	102	108	0	176	140	240	92	**1 013**	
	Total Capital Impact	882	236	689	862	0	1 172	1 024	1 428	629	**6 922**	**24%**
B. Cellars	Direct Capital Impact	112	26	91	153	0	108	128	84	78	**781**	
	Indirect Capital Impact	70	20	73	124	0	87	101	68	49	**593**	
	Induced Capital Impact	46	12	46	77	0	54	62	42	32	**373**	
	Total Capital Impact	228	58	210	354	0	250	291	195	159	**1 747**	**6%**
C. Manufacturing	Direct Capital Impact	441	188	338	266	0	1 150	579	1 196	509	**4 666**	
	Indirect Capital Impact	182	90	171	134	0	580	278	603	210	**2 250**	
	Induced Capital Impact	181	90	169	133	0	576	276	599	209	**2 232**	
	Total Capital Impact	804	368	678	532	0	2 307	1 134	2 398	928	**9 148**	**31%**
D. Trade, Catering and Accommodation	Direct Capital Impact	123	61	116	91	0	396	189	411	142	**1 531**	
	Indirect Capital Impact	183	91	173	136	0	587	281	610	211	**2 273**	
	Induced Capital Impact	155	77	146	115	0	498	238	518	179	**1 927**	
	Total Capital Impact	462	230	435	342	0	1 481	709	1 539	533	**5 731**	**20%**
E. Wine Industry = (A+B+C+D)	Direct Capital Impact	1 315	443	1 049	1 122	0	2 496	1 637	2 676	1 169	**11 907**	
	Indirect Capital Impact	555	239	499	536	0	1 409	805	1 485	567	**6 095**	
	Induced Capital Impact	506	210	463	433	0	1 305	717	1 399	512	**5 546**	
	Total Capital Impact	2 377	892	2 012	2 091	0	5 210	3 158	5 560	2 249	**23 548**	**81%**
F. Tourism[15]	Direct Capital Impact	0	0	0	0	0	0	0	0	0	**0**	
	Indirect Capital Impact	344	171	324	255	0	1 103	528	1 147	397	**4 270**	
	Induced Capital Impact	100	50	94	74	0	320	153	332	115	**1 237**	
	Total Capital Impact	444	221	418	328	0	1 423	681	1 479	512	**5 507**	**19%**
G. Grand Total = (E+F)	Direct Capital Impact	1 315	443	1 049	1 122	0	2 496	1 637	2 676	1 169	**11 907**	
	Indirect Capital Impact	899	410	823	791	0	2 512	1 333	2 632	964	**10 365**	
	Induced Capital Impact	606	260	557	507	0	1 624	870	1 732	627	**6 783**	
	Total Capital Impact	2 820	1 113	2 430	2 419	0	6 632	3 840	7 040	2 761	**29 055**	**100%**

[15] The direct impact of tourism is included as part of the indirect impact.

Table 25: Capital needed in South Africa to support forward and backward linkages of the wine industry of the Western Cape [Rand millions; 2008 prices]

			Little		Olifants	Orange						Current
		Breedekloof	Karoo	Malmesbury	River	River	Paarl	Robertson	Stellenbosch	Worcester	Total	Percentage
A. Primary Agriculture	Direct Capital Impact	640	168	505	612	279	843	741	986	441	**5 214**	
	Indirect Capital Impact	166	47	116	179	70	209	196	276	127	**1 388**	
	Induced Capital Impact	307	76	258	264	133	442	347	608	226	**2 662**	
	Total Capital Impact	1 113	292	879	1 056	482	1 495	1 284	1 870	794	**9 264**	**19%**
B. Cellars	Direct Capital Impact	112	26	91	154	119	109	128	84	78	**902**	
	Indirect Capital Impact	91	26	96	161	126	114	129	89	64	**896**	
	Induced Capital Impact	117	32	116	196	153	139	158	108	82	**1 100**	
	Total Capital Impact	321	83	303	511	398	361	416	281	224	**2 898**	**6%**
C. Manufacturing	Direct Capital Impact	441	188	338	266	209	1 152	580	1 197	509	**4 881**	
	Indirect Capital Impact	208	103	194	152	120	660	317	686	240	**2 681**	
	Induced Capital Impact	414	205	387	304	239	1 317	632	1 369	478	**5 344**	
	Total Capital Impact	1 064	496	919	722	569	3 129	1 529	3 253	1 227	**12 907**	**26%**
D. Trade, Catering and Accommodation	Direct Capital Impact	206	102	194	152	120	660	316	686	238	**2 674**	
	Indirect Capital Impact	399	198	375	295	232	1 278	612	1 329	460	**5 179**	
	Induced Capital Impact	583	290	549	431	340	1 868	894	1 942	672	**7 569**	
	Total Capital Impact	1 187	591	1 118	879	692	3 806	1 822	3 957	1 370	**15 422**	**31%**
E. Wine Industry = (A+B+C+D)	Direct Capital Impact	1 399	485	1 128	1 184	728	2 763	1 765	2 954	1 266	**13 672**	
	Indirect Capital Impact	865	374	781	788	548	2 262	1 255	2 380	891	**10 144**	
	Induced Capital Impact	1 421	603	1 310	1 195	864	3 766	2 032	4 027	1 458	**16 676**	
	Total Capital Impact	3 685	1 462	3 219	3 168	2 140	8 791	5 052	9 360	3 615	**40 492**	**81%**
F. Tourism[16]	Direct Capital Impact	0	0	0	0	0	0	0	0	0	**0**	
	Indirect Capital Impact	450	224	424	333	262	1 444	691	1 501	520	**5 850**	
	Induced Capital Impact	264	131	248	195	154	845	405	879	304	**3 426**	
	Total Capital Impact	714	355	673	528	416	2 289	1 096	2 380	824	**9 276**	**19%**
G. Grand Total = (E+F)	Direct Capital Impact	1 399	485	1 128	1 184	728	2 763	1 765	2 954	1 266	**13 672**	
	Indirect Capital Impact	1 315	599	1 205	1 122	811	3 705	1 946	3 881	1 411	**15 994**	
	Induced Capital Impact	1 685	734	1 559	1 391	1 018	4 611	2 437	4 906	1 762	**20 102**	
	Total Capital Impact	4 399	1 817	3 892	3 696	2 557	11 080	6 148	11 740	4 439	**49 768**	**100%**

[16] The direct impact of tourism is included as part of the indirect impact.

Table 26: Labour Needed in the Western Cape to Support Forward and Backward Linkages of the Wine Industry of the Western Cape [Rand millions; 2008 prices]

			Little		Olifants	Orange						Current
		Breedekloof	Karoo	Malmesbury	River	River	Paarl	Robertson	Stellenbosch	Worcester	Total	Percentage
A. Primary Agriculture	Direct Labour Impact	4 084	918	3 852	2 914	0	6 602	4 425	9 771	3 092	**35 659**	
	Indirect Labour Impact	278	76	210	271	0	354	322	510	204	**2 226**	
	Induced Labour Impact	406	102	336	354	0	580	458	791	300	**3 327**	
	Total Labour Impact	4 768	1 096	4 398	3 539	0	7 536	5 205	11 071	3 596	**41 211**	**25%**
B. Cellars	Direct Labour Impact	587	160	551	928	0	656	798	510	410	**4 600**	
	Indirect Labour Impact	166	45	175	294	0	208	225	162	116	**1 391**	
	Induced Labour Impact	151	41	149	251	0	177	204	138	105	**1 216**	
	Total Labour Impact	904	246	875	1 474	0	1 042	1 227	810	631	**7 207**	**4%**
C. Manufacturing	Direct Labour Impact	843	415	784	616	0	2 668	1 281	2 773	973	**10 353**	
	Indirect Labour Impact	757	375	709	557	0	2 412	1 156	2 508	873	**9 347**	
	Induced Labour Impact	591	292	552	434	0	1 880	902	1 955	682	**7 288**	
	Total Labour Impact	2 190	1 083	2 045	1 607	0	6 960	3 339	7 236	2 527	**26 987**	**16%**
D. Trade, Catering and Accommodation	Direct Labour Impact	5 175	2 576	4 874	3 830	0	16 592	7 945	17 250	5 971	**64 213**	
	Indirect Labour Impact	465	232	438	344	0	1 492	714	1 551	537	**5 775**	
	Induced Labour Impact	499	248	470	369	0	1 599	766	1 662	575	**6 188**	
	Total Labour Impact	6 139	3 056	5 782	4 543	0	19 683	9 424	20 463	7 084	**76 175**	**45%**
E. Wine Industry = (A+B+C+D)	Direct Labour Impact	10 690	4 069	10 061	8 288	0	26 518	14 448	30 305	10 446	**114 824**	
	Indirect Labour Impact	1 666	728	1 532	1 467	0	4 467	2 418	4 731	1 730	**18 738**	
	Induced Labour Impact	1 646	683	1 507	1 409	0	4 236	2 329	4 546	1 663	**18 018**	
	Total Labour Impact	14 001	5 480	13 100	11 163	0	35 220	19 196	39 581	13 838	**151 581**	**90%**
F. Tourism[17]	Direct Labour Impact	0	0	0	0	0	0	0	0	0	**0**	
	Indirect Labour Impact	1 011	503	953	748	0	3 242	1 553	3 371	1 167	**12 549**	
	Induced Labour Impact	320	159	302	237	0	1 026	491	1 067	369	**3 973**	
	Total Labour Impact	1 332	663	1 254	985	0	4 269	2 044	4 438	1 536	**16 521**	**10%**
G. Grand Total = (E+F)	Direct Labour Impact	10 690	4 069	10 061	8 288	0	26 518	14 448	30 305	10 446	**114 824**	
	Indirect Labour Impact	2 677	1 231	2 484	2 215	0	7 709	3 971	8 102	2 897	**31 287**	
	Induced Labour Impact	1 966	842	1 809	1 645	0	5 263	2 820	5 613	2 032	**21 991**	
	Total Labour Impact	15 333	6 143	14 354	12 149	0	39 489	21 240	44 020	15 374	**168 102**	**100%**

[17] The direct impact of tourism is included as part of the indirect impact.

Table 27: Labour Needed in South Africa to Support Forward and Backward Linkages of the Wine Industry of the Western Cape [Rand millions; 2008 prices]

			Little		Olifants	Orange						Current
		Breedekloof	Karoo	Malmesbury	River	River	Paarl	Robertson	Stellenbosch	Worcester	Total	Percentage
A. Primary Agriculture	Direct Labour Impact	4 088	919	3 855	2 917	1 808	6 607	4 429	9 776	3 094	**37 493**	
	Indirect Labour Impact	449	122	331	434	185	571	526	814	327	**3 758**	
	Induced Labour Impact	944	235	797	812	410	1 362	1 068	1 870	696	**8 193**	
	Total Labour Impact	5 481	1 276	4 982	4 164	2 402	8 539	6 022	12 460	4 117	**49 444**	**18%**
B. Cellars	Direct Labour Impact	588	160	552	929	723	657	799	511	410	**5 328**	
	Indirect Labour Impact	243	66	257	432	336	306	330	238	170	**2 379**	
	Induced Labour Impact	359	97	357	601	467	425	486	330	250	**3 371**	
	Total Labour Impact	1 190	323	1 165	1 962	1 526	1 387	1 615	1 079	830	**11 078**	**4%**
C. Manufacturing	Direct Labour Impact	846	417	786	618	486	2 675	1 285	2 781	976	**10 869**	
	Indirect Labour Impact	786	388	733	576	453	2 494	1 197	2 593	907	**10 128**	
	Induced Labour Impact	1 270	628	1 187	932	734	4 039	1 937	4 199	1 465	**16 392**	
	Total Labour Impact	2 902	1 433	2 705	2 126	1 674	9 208	4 419	9 574	3 348	**37 389**	**14%**
D. Trade, Catering and Accommodation	Direct Labour Impact	8 626	4 294	8 125	6 384	5 028	27 656	13 242	28 753	9 954	**112 063**	
	Indirect Labour Impact	1 085	540	1 022	803	632	3 478	1 666	3 616	1 252	**14 095**	
	Induced Labour Impact	1 784	888	1 681	1 321	1 040	5 721	2 739	5 948	2 059	**23 181**	
	Total Labour Impact	11 496	5 722	10 828	8 508	6 701	36 856	17 647	38 318	13 264	**149 339**	**54%**
E. Wine Industry = (A+B+C+D)	Direct Labour Impact	14 148	5 790	13 317	10 848	8 045	37 595	19 755	41 822	14 434	**165 753**	
	Indirect Labour Impact	2 563	1 116	2 342	2 245	1 607	6 849	3 719	7 262	2 656	**30 360**	
	Induced Labour Impact	4 357	1 848	4 021	3 666	2 651	11 546	6 230	12 347	4 470	**51 136**	
	Total Labour Impact	21 068	8 754	19 680	16 759	12 303	55 990	29 703	61 431	21 560	**247 249**	**90%**
F. Tourism[18]	Direct Labour Impact	0	0	0	0	0	0	0	0	0	**0**	
	Indirect Labour Impact	1 375	685	1 296	1 018	802	4 410	2 112	4 585	1 587	**17 869**	
	Induced Labour Impact	807	402	760	597	471	2 588	1 239	2 691	932	**10 488**	
	Total Labour Impact	2 183	1 087	2 056	1 615	1 272	6 998	3 351	7 276	2 519	**28 357**	**10%**
G. Grand Total = (E+F)	Direct Labour Impact	14 148	5 790	13 317	10 848	8 045	37 595	19 755	41 822	14 434	**165 753**	
	Indirect Labour Impact	3 939	1 801	3 638	3 263	2 409	11 259	5 830	11 846	4 243	**48 228**	
	Induced Labour Impact	5 164	2 250	4 781	4 263	3 122	14 135	7 469	15 039	5 401	**61 625**	
	Total Labour Impact	23 251	9 841	21 736	18 375	13 576	62 989	33 054	68 707	24 078	**275 606**	**100%**

[18] The direct impact of tourism is included as part of the indirect impact.

25 APPENDIX E: DETAILED SECTORAL IMPACT

Table 28: Sectoral Impact of GDP on detailed sectors [Rand millions; 2008 prices]

	Rand Millions						Percentages					
	Primary Agriculture	Cellars	Manufac turing	Trade Catering and Accommodation	Tourism	Total	Primary Agriculture	Cellars	Manufac turing	Trade, Catering and Accommodation	Tourism	Total
Agriculture	1 412	388	3 197	3 694	166	8 857	42%	28%	44%	38%	4%	34%
Mining	58	28	70	100	71	327	2%	2%	1%	1%	2%	1%
Meat, Fish, Fruit, Vegetables, Oils and Fat Products	21	9	43	59	89	220	1%	1%	1%	1%	2%	1%
Dairy products	6	2	12	16	24	60	0%	0%	0%	0%	1%	0%
Grain Mill, Bakery and Animal Feed Products	13	5	27	37	55	137	0%	0%	0%	0%	1%	1%
Other food products	8	3	21	21	24	76	0%	0%	0%	0%	1%	0%
Beverages and tobacco products	24	10	300	65	94	493	1%	1%	4%	1%	2%	2%
Textiles, Clothing, Leather Products and Footwear	14	6	29	42	49	141	0%	0%	0%	0%	1%	1%
Wood and Wood Products	6	3	14	20	12	56	0%	0%	0%	0%	0%	0%
Furniture	9	4	22	33	23	92	0%	0%	0%	0%	1%	0%
Paper and Paper Products	17	11	43	58	35	163	0%	1%	1%	1%	1%	1%
Publishing and Printing	9	4	24	67	17	122	0%	0%	0%	1%	0%	0%
Chemicals & Chemical Products (incl. Plastic Products)	161	92	158	239	164	813	5%	7%	2%	2%	4%	3%
Rubber Products	3	2	7	11	7	30	0%	0%	0%	0%	0%	0%
Non-Metallic Mineral Products	17	6	35	38	24	119	1%	0%	0%	0%	1%	0%
Basic Metal Products	25	9	35	37	19	125	1%	1%	0%	0%	0%	0%
Structural Metal Products	6	2	9	9	3	28	0%	0%	0%	0%	0%	0%
Other Fabricated Metal Products	13	5	26	22	16	83	0%	0%	0%	0%	0%	0%
Machinery & Equipment	47	12	34	42	27	162	1%	1%	0%	0%	1%	1%
Electrical Machinery & Apparatus	9	4	16	24	13	65	0%	0%	0%	0%	0%	0%
Communication, Medical and other Electronic Equipment	3	1	6	12	5	27	0%	0%	0%	0%	0%	0%
Manufacturing of Transport Equipment	21	10	43	62	33	169	1%	1%	1%	1%	1%	1%
Other Manufacturing & Recycling	17	6	30	42	47	141	0%	0%	0%	0%	1%	1%
Electricity	81	29	92	134	111	448	2%	2%	1%	1%	2%	2%
Water	33	13	30	33	22	131	1%	1%	0%	0%	0%	0%
Building & Construction	99	22	103	150	62	436	3%	2%	1%	2%	1%	2%
Trade	274	121	698	888	672	2 654	8%	9%	10%	9%	15%	10%

Accommodation	18	8	41	79	287	434	1%	1%	1%	1%	6%	2%
Transport	106	53	276	377	646	1 457	3%	4%	4%	4%	14%	6%
Communication	93	46	205	592	199	1 135	3%	3%	3%	6%	4%	4%
Finance & Insurance	283	119	583	848	405	2 239	8%	9%	8%	9%	9%	9%
Real Estate	175	79	465	733	366	1 818	5%	6%	6%	8%	8%	7%
Business Services	124	184	263	650	356	1 577	4%	13%	4%	7%	8%	6%
Community, Social and Personal Services	166	73	336	476	339	1 389	5%	5%	5%	5%	8%	5%
Total	**3 373**	**1 368**	**7 291**	**9 709**	**4 481**	**26 223**	**100%**	**100%**	**100%**	**100%**	**100%**	**100%**

26 APPENDIX F: EXOGENOUS VECTOR FOR PRIMARY AGRICULTURE IN STELLENBOSCH

The table below gives an example of the exogenous vector for the primary agriculture in Stellenbosch. These figures are used as the inputs for the operational phase of the model.

Table 29: Exogenous Vector for Primary Agriculture in Stellenbosch

		Values	Percentages
1.	**Production/Turnover per annum (Rand millions; 2008 prices)**	**495.62**	
2.	**Number of Labourers (Numbers, 2008)**		
	Skilled Labourers	272	
	Semi-skilled Labourers	2 361	
	Unskilled Labourers	6 989	
3.	**Apportionment of Production**		
	Total Production in terms of:		
	Domestic Sales	29.84	60%
	Exports	19.85	40%
	Total	**49.69**	**100%**
4.	**Split of Production between Economic Entities**		
	Intermediate Demand	191.27	39%
	Labour Remuneration	176.65	36%
	Gross Operating Surplus	124.79	25%
	Total	**492.71**	**100%**
5.	**Split of Intermediate Demand between Commodities**		
	Agriculture	12.56	7%
	Mining	0.49	0%
	Meat, Fish, Fruit, Vegetables, Oils & Fat Products	0.68	0%
	Dairy Products	0.12	0%
	Grain Mill, Bakery & Animal Feed Products	0.08	0%
	Other Food Products	0.04	0%
	Beverages & Tobacco Products	0.00	0%
	Textiles, Clothing, Leather Products & Footwear	0.39	0%
	Wood & Wood Products	0.40	0%
	Furniture	0.00	0%
	Paper & Paper Products	3.30	2%
	Publishing & Printing	0.21	0%
	Chemicals & Chemical Products (incl. Plastic Products)	86.99	45%
	Rubber Products	0.41	0%
	Non-Metallic Mineral Products	2.24	1%
	Basic Metal Products	0.22	0%
	Structural Metal Products	0.83	0%
	Other Fabricated Metal Products	0.48	0%
	Machinery & Equipment	40.20	21%
	Electrical Machinery & Apparatus	0.00	0%
	Communication, Medical & Other Electronic Equipment	0.00	0%
	Manufacturing of Transport Equipment	1.95	1%
	Other Manufacturing & Recycling	2.09	1%
	Electricity	10.71	6%
	Water	12.03	6%
	Buildings and Other Construction	2.02	1%
	Trade	1.37	1%
	Accommodation	0.00	0%
	Transport Services	2.01	1%
	Communications	0.11	0%
	Insurance	8.59	4%
	Real Estate	0.00	0%
	Business Activities	0.19	0%
	Community, Social and Personal Services	0.54	0%
	Total	**191.27**	**100%**
6.	**Split of Labour Remuneration between Labourers**		
	Africans - Skilled	3.57	2%
	Africans - Semi-Skilled	28.64	16%
	Africans - Unskilled	17.60	10%
	Coloureds - Skilled	7.38	4%

	Coloureds - Semi-Skilled	32.93	19%
	Coloureds - Unskilled	31.82	18%
	Asians/Indians - Skilled	0.42	0%
	Asians/Indians - Semi-Skilled	0.52	0%
	Asians/Indians - Unskilled	0.02	0%
	Whites - Skilled	21.46	12%
	Whites - Semi-Skilled	29.56	17%
	Whites - Unskilled	2.72	2%
	Total	**176.65**	**100%**

27 APPENDIX G: PRIMARY DATA

Table 30: Farming Production Cost for Wine Grapes for each of the Wine Regions for 2008 (Cost Items as Rand per Hectare)

		Breedekloof	Little Karoo	Malmesbury	Olifants River	Orange River	Paarl	Robertson	Stellenbosch	Worcester	Total
A. Direct Costs	**- Seed**	71	197	76	1	15	61	5	113	54	593
	- Fertilizer	715	931	556	1 299	831	543	891	504	932	7 202
	- Organic Material	483	245	86	119	118	67	224	26	379	1 747
	- Pesticide Control	1 453	1 049	1 076	921	962	1 132	1 309	1 572	1 271	10 745
	- Herbicide Control	508	182	249	261	381	368	500	445	578	3 472
	- Repair and Building Material	155	114	59	159	113	83	138	301	169	1 291
	Total Direct Costs	**3 385**	**2 718**	**2 102**	**2 760**	**2 420**	**2 254**	**3 067**	**2 961**	**3 383**	**25 050**
B. Labour Cost	**- Supervision**	1 081	741	332	509	583	1 027	811	2 219	1 261	8 564
	- Permanent Labour	3 953	3 424	2 316	3 782	2 982	3 880	3 892	5 045	4 954	34 228
	- Seasonal Labour and Contract Work	883	1 378	2 097	872	2 857	2 166	1 017	3 044	343	14 657
	Total Labour Cost	**5 917**	**5 543**	**4 745**	**5 163**	**6 422**	**7 073**	**5 720**	**10 308**	**6 558**	**57 449**
C. Mechanization	**- Fuel**	1 308	1 545	1 111	1 687	1 826	1 365	1 204	1 561	1 461	13 068
	- Repair, Parts and Maintenance	1 354	1 698	731	2 041	1 180	1 362	1 660	1 881	1 515	13 422
	- License and Insurance	338	340	168	431	470	254	281	316	406	3 004
	- Transport Hired	130	196	511	143	164	311	17	117	54	1 643
	Total Mechanization Cost	**3 130**	**3 779**	**2 521**	**4 302**	**3 640**	**3 292**	**3 162**	**3 875**	**3 436**	**31 137**
D. Fixed Improvements	**- Repair and Maintenance**	456	298	246	171	313	475	725	465	369	3 518
	- Insurance	161	200	92	194	340	127	112	217	194	1 637
	Total Fixed Improvement Cost	**617**	**498**	**338**	**365**	**653**	**602**	**837**	**682**	**563**	**5 155**
E. General Expenditure	**- Electricity**	1 092	775	273	1 037	419	756	1 031	625	910	6 918
	- Water Costs	86	1 206	42	1 509	899	368	503	702	767	6 082
	- Land, Property and Municipal Taxes	148	130	65	134	72	126	86	170	134	1 065
	- Administration	754	928	429	791	1 002	921	819	2 316	662	8 622
	Total General Expenditure	**2 080**	**3 039**	**809**	**3 471**	**2 392**	**2 171**	**2 439**	**3 813**	**2 473**	**22 687**
F. Provision for Renewal	**- Vineyards**	3 632	3 675	2 873	3 505	3 855	3 608	3 717	3 525	3 668	32 058
	- Fixed Improvements	624	523	362	659	394	523	553	933	618	5 189
	- Loose Assets or Production Means	2 299	3 009	1 151	3 589	2 775	2 187	2 477	2 824	2 287	22 598
	Total Renewal Cost	**6 555**	**7 207**	**4 386**	**7 753**	**7 024**	**6 318**	**6 747**	**7 282**	**6 573**	**59 845**
	Total Expenditure (Rand per ha)	**21 684**	**22 784**	**14 901**	**23 814**	**22 551**	**21 710**	**21 972**	**28 921**	**22 986**	**201 323**

Source: http://www.sawis.co.za/info/download/Produksiekoste_Breedekloof.pdf

Table 31: Expenses Attributable to Bulk and Packaged Wine for 2008 (Cost per Rand per Ton)

	Robertson/ Karoo	Western Cape	Worcester
Permanent Labour	163	175	102
Temporary Labour	18	20	14
Insurance	13	10	10
Marketing and Sales Expenses	19	30	4
Bottling and Packaging Costs	13	29	0
Chemicals, Cleaning and Filtration Materials	113	117	94
Distribution Costs	35	17	7
Sundry Administration Expenses	68	127	36
Sundry Cellar Expenses	40	28	32
Electricity and Water	36	33	18
Finance Charge	80	126	78
Rent Paid	4	13	1
Repairs, Maintenance and Cellar Consumables	63	58	47
Telephone and Postage	6	8	3
Depreciation	81	90	65
Total Expenditure (Rand per ton)	**751**	**880**	**513**

Source: Price Waterhouse Coopers - The South African Wine Industry; Section 3.1 – Income Statement: Expense Analysis

Table 32: Producer Income per Wine District for 2008

Sales		Breedekloof	Klein Karoo	Malmes-bury	Olifants River	Orange River	Paarl	Robert-son	Stellen-bosch	Worcester	Unclassified	Total
Grapes for "Good" Wine	**Litres**	567 551	31 042	15 424 359	1 678 085	0	15 803 824	2 009 480	30 649 295	4 764 899	0	70 928 535
	Rand values	2 498 909	280 090	65 931 333	6 886 271	0	64 289 077	9 058 417	140 521 817	4 215 102	0	293 681 016
Bulk Sales	**Litres**	118 989 279	14 832 163	23 715 930	111 949 225	22 259 410	54 575 643	94 144 259	30 969 366	67 608 262	0	539 043 537
	Rand values	403 510 610	44 002 921	91 396 769	321 695 077	58 773 286	216 844 316	340 953 359	125 892 438	225 827 542	0	1 828 896 317
Bottled Sales	**Liter**	9 106 246	6 043 498	22 488 940	24 687 173	19 172 159	42 005 530	36 215 655	32 744 196	5 526 071	0	197 989 468
	Rand values	30 926 791	20 525 033	76 377 330	83 843 007	65 112 820	142 659 912	122 996 238	111 206 409	18 767 739	0	672 415 279
	Ver Liter	48 699	254 889	177 815	29 365	1 172 341	171 198	100 797	46 001	61 623	0	2 062 728
	Rand values	187 673	982 272	685 250	113 165	4 517 880	659 750	388 444	177 275	237 478	0	7 949 188
"Good" Wine Total	**Litres**	**128 711 775**	**21 161 592**	**61 807 044**	**138 343 848**	**42 603 910**	**112 556 195**	**132 470 191**	**94 408 858**	**77 960 855**	**0**	**810 024 268**
	Rand values	**437 123 982**	**65 790 316**	**234 390 682**	**412 537 520**	**128 403 987**	**424 453 055**	**473 396 457**	**377 797 939**	**249 047 861**	**0**	**2 802 941 799**
Grapes for Distilled Wine	**Litres @ 10%**	84 828	4 640	2 305 370	250 811	0	2 362 085	300 343	4 580 933	712 176	0	10 601 186
	Rand values	81 672	4 467	2 219 610	241 481	0	2 274 216	289 170	4 410 522	685 683	0	10 206 821
Distilled Wine	**Litres @ 10%**	19 171 827	3 130 008	13 791 985	15 481 986	24 837 926	21 139 487	20 592 381	4 673 476	29 427 238	15 622 094	167 868 408
	Rand values	11 585 397	2 242 892	9 224 511	6 993 157	25 540 258	14 053 426	14 202 290	1 468 823	69 494 084	13 056 783	167 861 621
Spirits and Grappa	**Litres @ 10%**	0	344 131	0	0	19 891	4 509	577	25 904	0	0	395 012
	Rand values	0	343 357	0	0	19 846	4 499	576	25 846	0	0	394 124
Distilled Wine Total	**Litres @ 10%**	**19 256 655**	**3 478 779**	**16 097 355**	**15 732 797**	**24 857 817**	**23 506 081**	**20 893 301**	**9 280 313**	**30 139 414**	**15 622 094**	**178 864 606**
	Rand values	**11 667 069**	**2 590 717**	**11 444 121**	**7 234 639**	**25 560 105**	**16 332 141**	**14 492 036**	**5 905 191**	**70 179 767**	**13 056 783**	**178 462 566**
Rabat Wine and Brandy	**Litres @ 10%**	26 669 266	4 702 859	3 097 242	20 236 330	7 589 192	3 661 617	15 538 316	0	14 004 592	1 018 803	96 518 217
	Rand values	60 208 858	10 762 824	7 294 233	45 528 587	16 989 123	7 428 808	37 026 397	0	31 158 636	2 307 460	218 704 927
	Litres @ 10%		78 607	0	0	0	40 983	6 688	29 632		0	155 910
	Rand values		178 119	0	0	0	92 865	15 155	67 144		0	353 283
Rabat Wine and Brandy Total	**Litres @ 10%**	**26 669 266**	**4 781 466**	**3 097 242**	**20 236 330**	**7 589 192**	**3 702 600**	**15 545 004**	**29 632**	**14 004 592**	**1 018 803**	**96 674 127**
	Rand values	**60 208 858**	**10 940 943**	**7 294 233**	**45 528 587**	**16 989 123**	**7 521 674**	**37 041 552**	**67 144**	**31 158 636**	**2 307 460**	**219 058 210**
Non-Alcoholic Bulk	**Litres**	85 660	0	10 950	7 359 221		0	4 468 006	29 620	0	0	11 953 457
	Rand values	227 150	0	22 995	27 021 905		0	14 215 927	88 860	0	0	41 576 837
Non-Alcoholic Bottled	**Litres**	32 234	46 898	45 353	58 953	45 218	191 743	632 368	32 044	113 295	0	1 198 106
	Rand values	112 117	163 122	157 748	205 052	157 278	666 926	2 199 519	111 456	394 066	0	4 167 285
Juice by Distilled	**Litres @ 10%**	0	0	0	0	59 379 227	0	0	0	0	0	59 379 227
	Rand values	0	0	0	0	73 692 315	0	0	0	0	0	73 692 315
Non-Alcoholic Total	**Litres @ 10%**	**117 894**	**46 898**	**56 303**	**7 418 174**	**59 424 445**	**191 743**	**5 100 374**	**61 664**	**113 295**	**0**	**72 530 790**
	Rand values	**339 267**	**163 122**	**180 743**	**27 226 957**	**73 849 594**	**666 926**	**16 415 447**	**200 316**	**394 066**	**0**	**119 436 437**
Total Income	**Rand Values**	**509 339 177**	**79 485 098**	**253 309 778**	**492 527 702**	**244 802 808**	**448 973 795**	**541 345 491**	**383 970 591**	**350 780 329**	**15 364 243**	**3 319 899 013**

Source: SAWIS

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